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Observations on Lamb Dysentery in 1927.

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Our investigation into the etiology of lamb dysentery in the Pendle Hill district of North Lancashire was continued during the lambing season of 1927. The field laboratory was again established at farm D.

1. The epidemiology of lamb dysentery at Pendle Hill (1927.)

(a) *The distribution of the disease* on the farms under our observation is represented in the diagram. *With the exception of farm E, lamb dysentery recurred on all the farms affected in* 1926.

From farm E (affected 1923—1926 inclusive), 93 of the 123 ewes were removed before lambing commenced to fields adjoining farm B. No case of dysentery was observed in either portion of the flock; 170 lambs being born alive.

Farms K, R (neither on diagram) C, N, T, U, V, W, and X again remained free from dysentery. The 44 ewes on farm R included 12 cast ewes brought from farm A during the previous autumn.

Dysentery appeared for the first time on farm Y, four out of the 36 lambs born alive dying of the disease. The owner, according to his invariable practice for the past 34 years, had purchased his 30 ewes in the local market during the preceding winter.

(b) *The mortality rates from dysentery* are given in table I. *The average mortality rate for the district declined from* 21 *per cent. in* 1926 *to* 12 *per cent., the lowest recorded since* 1918. Farms F, G, H, L, and P show decided falls in the percentage mortality rate.

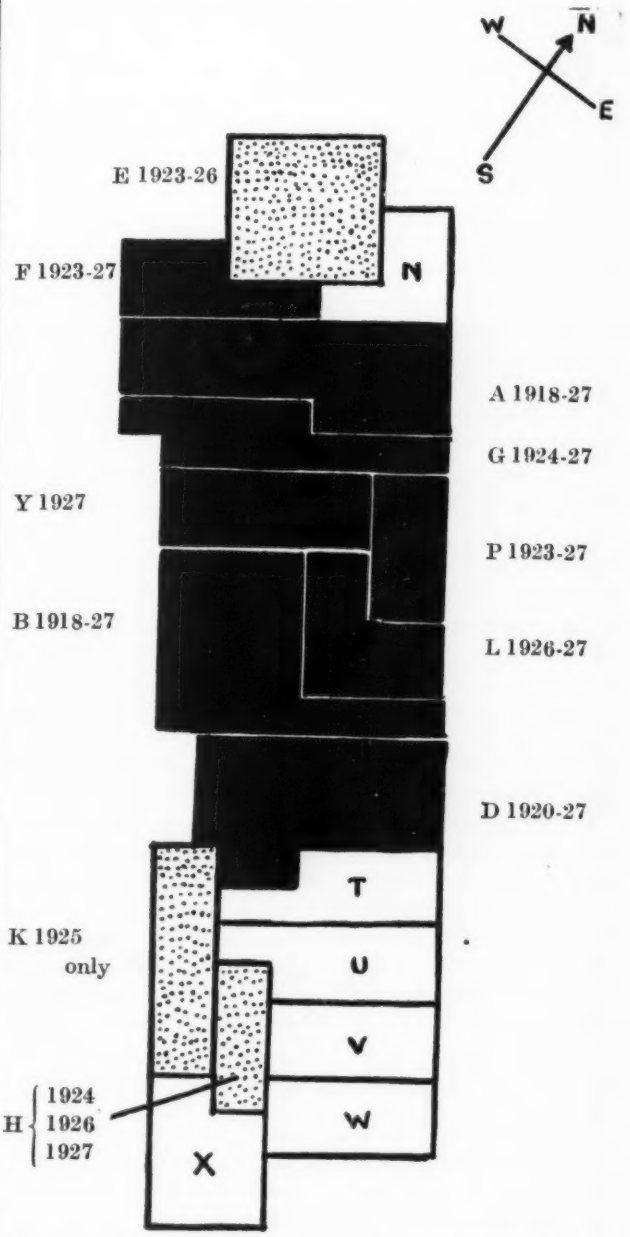
Of the 111 lambs born alive on Farm F only two (twins) showed symptoms of dysentery; one died aged 7 days, but its twin recovered.

Dysentery had already broken out on Farm G when 10 Scotch Blackface ewes were added to the flock. These 10 ewes were lambed in a field divided by a hedge from the remainder of the flock, and though their 11 lambs were born during the third week of the disease, no case of dysentery occurred.

Detailed daily records throughout the season were preserved on farms B and D by ourselves, and on farms L and P by the respective owners, post-mortems being made at the field laboratory. The percentage incidence and mortality on these four farms are shown in table II. *In the dysentery cases the average mortality was* 76 *per cent.*, and compares with the rate on two farms in 1926, viz., farm D, 76 per cent.; farm G, 83 per cent.

(c) *Dysentery in relation to the age of the lambs on farm D.* Table III shows that 78 per cent. of all the cases (90 per cent. in 1926) occurred within five days of birth, and 16 *per cent.* (18 per cent. in 1926) *within the first* 24 *hours.*

In 1927 the incidence remained more constant for each of the first five days of life, whereas in 1926 it attained its maximum of 28 per cent. on the second day and then fell. However, the average for the two seasons reveals a maximum incidence on the 2nd and 3rd days of life.



Of the Relationship of the Pendle Hill Farms around the Laboratory Farm D. Continuously affected Farms—Black; Intermittently affected Farms—Speckled; Unaffected Farms—White. Vide Table 1. (Farm C not included).

Both in 1926 and 1927 the incidence of death followed a similar curve.

(d) *Dysentery in relation to the weekly birth-rate of lambs during the season.* In 1926 the lambing season on farm D occupied six weeks, beginning 21st March ; but in 1927 the season commenced 6th March and continued for 15 weeks, although only five lambs were born during the last five weeks.

Table IV shows (as in 1926) a very definite relationship between the birth rate on the one hand, and the incidence and mortality from dysentery on the other. In 1927 the maxima of all three occurred in the fifth and sixth week ; in the third and fourth week in 1926.

The increase in the percentage incidence of dysentery in the lambs born per week in 1927 is not so regular as in 1926.

(e) *Dysentery in relation to "foster-mothered" or "twinned" lambs.* The effect of mothering on the dysentery incidence was again studied on farm D, the selection of the animals being left to the farmer as in 1926 (Vide table V).

Twelve mothered lambs remained healthy, and none of their twins had dysentery, though 10 of the foster-mothers had lost their own lambs from dysentery.

Of the three mothered lambs contracting dysentery, two were affected at the time of mothering ; the third (127B) contracted dysentery four days later, but its foster-mother's lamb was not known to be affected, whereas its twin (127A) manifested dysentery one day after the act of mothering.

This experiment, as in 1926, has not produced any evidence in support of the contagiousness of dysentery.

(f) *Dysentery in relation to single-born, twin-born, and triple-born lambs respectively.* In 1926 the percentage of cases of dysentery, of deaths from dysentery, and mortality among dysentery cases, were consistently higher by approximately 10 per cent. in twin-born lambs than in single-born. Table VI. shows that in 1927 the percentage of cases of dysentery and of deaths from dysentery are approximately equal for single- and twin-born lambs, and that the percentage mortality among dysentery cases is even higher for single-born.

In 1927, four sets of triplets were born, though in each of two there were two still-births. All the lambs born alive of these four sets contracted and died from dysentery.

Table VII. gives the number of occasions on which dysenterv affected one or both members of 32 pairs of twin lambs ; 63 pairs of twin lambs in the same flock were unaffected. *Both members of the pairs contracted and died from dysentery less frequently than one member.*

(g) *Dysentery in relation to the lambs of the same ewe, but born in different years.* On the 1926 results it was shown that :—

(a) of 5 ewes whose lambs contracted dysentery in 1924,
2 had affected lambs in 1925 and 1926,
4 had affected lambs in 1926, but healthy lambs in 1925,
1 had lambs which remained healthy in 1925 and 1926.

(b) of 12 ewes whose lambs contracted dysentery in 1925,
8 had affected lambs in 1926,
4 had lambs which remained healthy in 1926.

This analysis tended to support the view among farmers that the same ewe loses her lambs year after year. However, the results gained after a further season's observations on the same farm do not support the farmers' contention, viz.,

(a) of 8 ewes whose lambs contracted dysentery in 1925,
2 had affected lambs in 1926 and 1927,
4 had affected lambs in 1926, but healthy lambs in 1927,
2 had lambs which remained healthy in 1926 and 1927.

(b) Of 19 ewes whose lambs contracted dysentery in 1926,
7 had affected lambs in 1927,
12 had lambs which remained healthy in 1927.

2. Observations on the use of sheep blood as a prophylactic in lamb dysentery.

Our previous publication (Hare and Glynn, 1927) pointed out the similarity of lamb dysentery to melaena neonatorum of infants. Since cases of malaena neonatorum are usually cured by the intravenous and subcutaneous injection of fresh human blood, the value of the prophylactic inoculation of new born lambs with sheep's blood was tested in 1927 on farm D.

Alternate lambs within their first 24 hours of life were inoculated intraperitoneally each with 25 c.c. of citrated sheep's whole blood. The citrated sheep's blood (supplied by Evans, Sons, Lescher and Webb) was transported to, and preserved at, the farm in ice boxes. Only blood under 48 hours old was used. The use of the mother-ewe's blood for her own lamb, while most desirable, was found to be impracticable.

Table VIII shows that the citrated sheep's blood possessed no prophylactic properties against the disease ; its therapeutic value was tested in a limited number of cases with negative results.

Addendum.

The publication of these epidemiological records has been delayed owing to the illness of one of us (E.E.G.) It is hoped that our additional observations upon the pathology of the disease will be available for publication at a later date.

References.

Hare, Tom, and Glynn, Ernest—" Observations on Lamb Dysentery." *Journal Path. and Bact.*, 1927, XXX, 473

STOCK PROBLEMS IN AUSTRALIA.

Dr. J. B. Orr, of the Rowett Research Institute for Animal Nutrition, Aberdeen, and Sir Arnold Theiler, formerly of the Veterinary Research Institute, Onderstepoort, South Africa, have been making a careful study of pasture and stock problems in Australia. Unfortunately, Dr. Orr's visit has been only a brief one, but Sir Arnold Theiler will spend six months in the Commonwealth. Problems of pasture improvement and animal nutrition generally are being taken up by the Council for Scientific and Industrial Research, and it is hoped as a result of Dr. Orr's presence to arrange for the utmost co-operation between workers there and in others parts of the British Empire, particularly at Aberdeen. The question of how best to organise tropical agricultural research work in Australia or adjoining territories has been under discussion between the Council and the Empire Marketing Board for some time, and Dr. Orr's observations will no doubt weigh considerably with the Board when a decision comes to be made. The policy of the Council towards veterinary research will be based largely upon the recommendations to be made by Sir Arnold Theiler.—*Nature.*

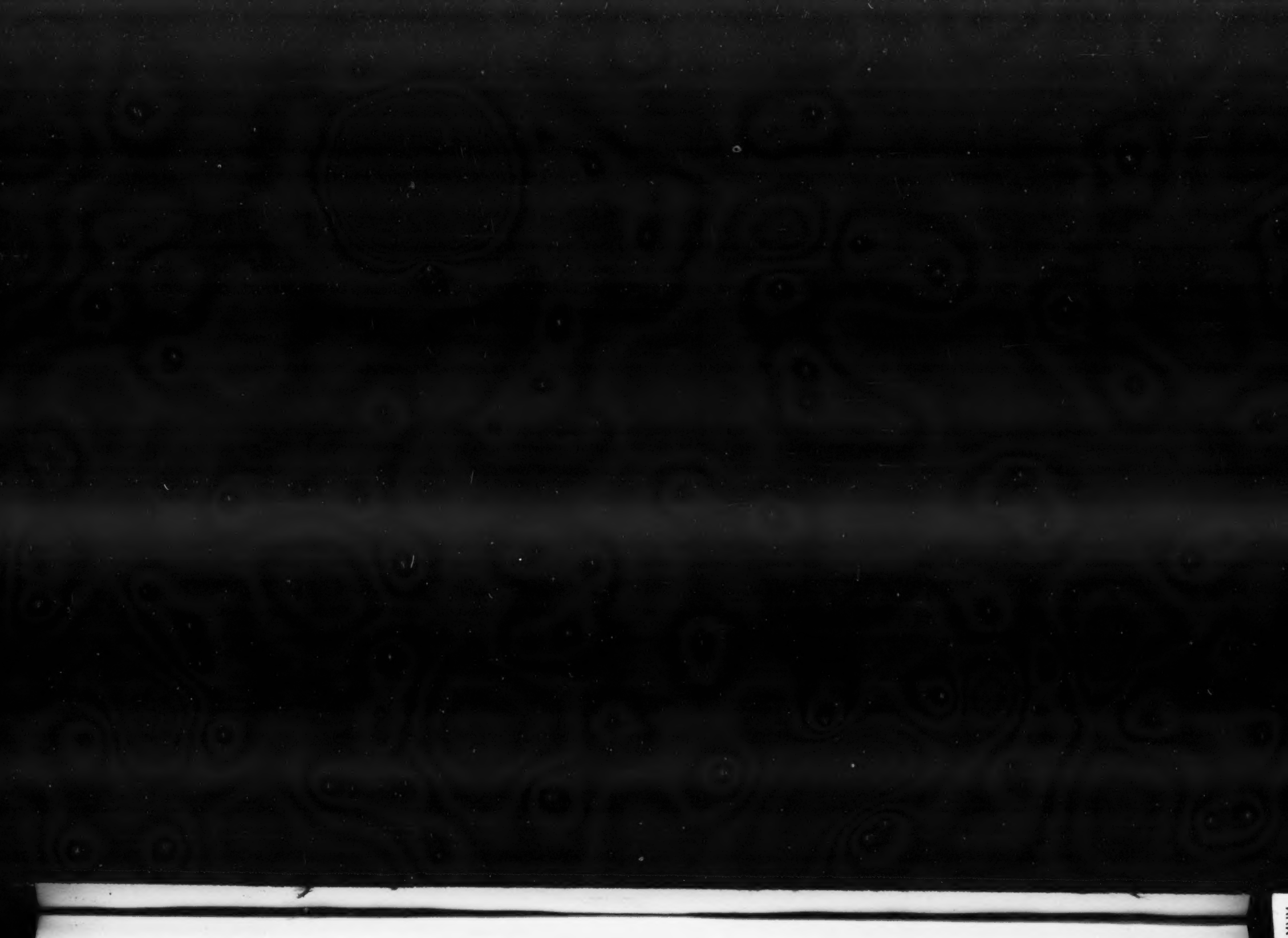


TABLE I.

Of the annual percentage mortality from lamb dysentery during 1918—27 on the Pendle Hill farms.

Farm No.	Percentage mortality during various years										Average Mortality
	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	
A.	28	28	28	22	22	22	11	17	9	10	19·7
B.	21	40	32	19	8	26	19	23	16	15	21·9
C.	31	0	0	8	0	0	0	0	0	0	19·5
D.	—	—	10	15	23	27	22	28	20	20	20·6
E.	—	—	—	—	—	3	5	27	29	0	16·0
F.	—	—	—	—	—	46	46	33	24	1	30·0
G.	—	—	—	—	—	—	5	10	18	7	10·0
H.	—	—	—	—	—	—	1	0	12	7	6·6
K.	—	—	—	—	—	—	—	10	0	0	10·0
L.	—	—	—	—	—	—	—	—	35	23	29·0
P.	—	—	—	—	—	8	20	40	27	14	21·8
Y.	—	—	—	—	—	—	—	—	—	11	11·0
Average	26·6	34·0	23·3	16·0	17·6	22·0	16·1	23·5	21·1	12·0	18·0

TABLE II.

Of the percentage incidence and mortality fr
on four farms

No.	No. of years affected	No. of ewes lambed in 1927	No. of lambs born alive in 1927	Lambs affected with dysentery		L d dy
				No.	Per cent.	No.
B.	10	214	295	54	18	45
D.	8	223	298	79	27	59
L.	2	67	89	23	26	20
P.	5	72	104	27	26	15
		Total Average	786	183	23	139

TABLE IV.

Of dysentery in the flock of 298 lambs on farm D. during 1927. It shows the relation between the birth-rate of the lambs per
on the 298 lambs born and on the

	No. or												
	1st week (6th Mar.)		2nd week		3rd week		4th week		5th week		6th week		7th
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.
No. and per cent. of 298 lambs born alive each week of the season	1	0·3	17	5·7	28	9·4	50	16·8	121	40·6	46	15·4	10
No. and per cent. of 298 lambs contracting dysentery weekly	0	0	1	0·3	6	2·0	11	3·7	18	6·0	28	9·4	5
Per cent. incidence of dysentery in lambs born weekly	0	0		5·9		21·4		21·5		14·8		60·8	
No. and per cent. of lambs dying from dysentery weekly	0	0	0	0	3	1·0	6	2·0	10	3·3	25	8·4	5
Per cent. mortality from dysentery in lambs born weekly		0		0		10·3		11·7		8·2		54·3	

BLE II.

rtality from lamb dysentery during 1927
ur farms.

bs ed h tery	Lambs dying of dysentery		Lambs dying of other diseases		Mortality per cent. in the dysentery cases
Per ent.	No.	Per cent.	No.	Per cent.	
18	45	15	8	3	83
27	59	20	11	4	75
26	20	23	9	10	87
26	15	14	4	4	56
	139		32		
23		18		4	76

TABLE III.

Of dysentery in the flock of 298 lambs on farm D. during 1926. It shows the relation between the age of the lamb in days and the dysentery incidence and mortality rates—the latter are reckoned both from the day of onset of dysentery and the day of death.

Age of lamb in days	No. and per cent. of the 79 lambs contracting dysentery according to age		No. and per cent. of the 59 lambs dying from dysentery according to age (reckoned from the day of onset)		Per cent. mortality of lambs contracting dysentery according to age	No. and per cent. of the 59 lambs dying from dysentery according to age (reckoned from the day of death)	
	No.	Per cent.	No.	Per cent.	Per cent.	No.	Per cent.
1	13	16·4	12	20·3	92·3	1	1·7
2	12	15·2	10	16·9	83·3	6	10·2
3	14	17·7	13	22·0	92·8	7	11·8
4	10	12·6	7	11·8	70·0	6	10·2
5	13	16·4	11	18·6	84·6	8	13·5
6	3	3·8	1	1·7	—	4	6·7
7	5	6·3	3	5·1	50·0	6	10·2
8	4	5·0	2	3·4	—	7	11·8
9	3	3·8	—	—	—	1	1·7
10	1	1·2	—	—	—	3	5·1
11	1	1·2	—	—	—	3	5·1
12	—	—	—	—	—	5	1·7
20	—	—	—	—	—	1*	1·7
Total	79	99·6	59	99·7	78·8	59	99·8

*This lamb was slaughtered.

E IV.

mbs per week and the dysentery incidence and mortality rates per week. The percentage mortality is calculated both
l on the number born each week.

No. of Weeks in Lambing Season.

eek	7th week		8th week		9th week		10th week		11th week		12th week		13th week		14th week		15th week		
er nt.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	Total.
·4	10	3·3	7	2·3	6	2·0	5	1·7	0	0	2	0·6	2	0·6	2	0·6	1	0·3	298
·4	5	1·7	3	1·0	3	1·0	2	0·6	0	0	0	0	0	0	2	0·6	0	0	79
·8		50·0		42·8		50·0		40·0		0		0		0		100		0	—
·4	5	1·7	2	0·6	3	1·0	4	1·2	0	0	0	0	0	0	1	0·3	0	0	59
·3		50·0		28·5		50·0		80·0		0		0		0		50·0		0	—

TABLE V.

Of "mothering," giving the incidence of dysentery in 15 pairs of twin-lambs, one sucking its

The Mother.			The Foster-mothe		
Mother's No.	Date lambed	Her second lamb	Ewe's No.	Date lambed	Cause
110	T. 3/4/27	110B. died other causes 22/4/27	213	T. 27/3/27	Dysen
127	T. 5/4/27	127A. onset dysentery 11/4/27, died 14/4/27	152	S. 4/4/27	Drown
76	T. 11/4/27	76B. nil	60	S. 5/4/27	Dysen
164	T. 8/4/27	164B. nil	131	S. 8/4/27	Dysen
80	T. 8/4/27	80B. nil	236	S. 6/4/27	Dysen
95	T. 8/4/27	95B. died dysentery 14/4/27	127	T. 5/4/27	Dysen
49	T. 9/4/27	49B. nil	242	T. 9/4/27	Dysen
241	T. 8/4/27	241C. nil	167	S. 17/4/27	Stillbo
251	T. 12/4/27	251B. nil	250	S. 12/4/27	Dysen
84	T. 25/3/27	84A. nil	211	TR. 27/3/27	Dysen
118	T. 24/3/27	118A. nil	215	S. 29/3/27	Dysen
153	T. 24/3/27	153B. nil	154	S. 1/4/27	Stillbo
128	T. 27/3/27	128B. nil	237	TR. 6/4/27	Dysen
218	T. 3/4/27	218A. died dysentery 5/4/27	23	S. 8/4/27	Other
166	T. 16/4/27	166C. nil	254	T. 24/4/27	Dysen

TABLE VI.

Comparing the incidence of dysentery, also the number of stillbirths in single-born, twin-born and triple-born lambs respectively on farm D.

Total births.	Single-born lambs		Twin-born lambs		Triple-born lambs		Total	
	124		190		12		326	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
No. and per cent. of stillbirths	6	4·8	18	9·5	4	33·3	28	8·3
No. and per cent. of dysentery cases	28	23·7*	43	25·0*	8	100*	79	26·5*
No. and per cent. of dysentery deaths	21	17·8*	30	17·4*	8	100*	59	19·8*
Per cent. mortality among dysentery cases		75·0		69·7		100		74·7

*These percentages are calculated on the number of live births.

TABLE VII.

Of the dysentery incidence and mortality among ing the percentage in which one or both of

No. of pairs of twin-lambs on farm D.	Per cent. of occ in which both m of the pair affected	
	No.	Per
32 pairs, dysentery incidence...	11	34
20 pairs, dysentery deaths ...	9	45
63 pairs, unaffected ‡ ...	—	—

*Includes 2 cases in which one twin died at

†Includes 1 case in which one twin died at

‡Includes 15 cases in which one twin died a

E V.

ucking its own mother, and the other its foster-mother. (1927).

ter-mother.		The "mothered" lamb.			Result
Cause of own lamb's death		Lamb's No.	Date of mothering	Age at mothering	
Dysentery	B. 31/3/27 A. 2/4/27	110A.	3/4/27	1 day	Nil
Drowned	5/4/27	127B.	6/4/27	1 „	Dysentery onset 10/4/27. died 16/4/27
Dysentery	13/4/27	76A.	13/4/27	2 days.	Nil
Dysentery	10/4/27	164A.	10/4/27	2 „	Nil
Dysentery	13/4/27	80A.	13/4/27	5 „	Nil
Dysentery	B. 16/4/27 A. 13/4/27	95A.	13/4/27	5 „	Had dysentery at "mothering," but recovered
Dysentery	B. 14/4/27 A. 16/4/27	49A.	18/4/27	9 „	Nil
Stillborn		241B.	17/4/27	9 „	Nil
Dysentery	21/4/27	251B.	21/4/27	9 „	Nil
Dysentery	A. 31/3/27 B. 1/4/27 A. 4/4/27	84B.	4/4/27	10 „	Nil
Dysentery	3/4/27	118B.	3/4/27	10 „	Nil
Stillborn	1/4/27	153A.	3/4/27	10 „	Nil
Dysentery	A. 8/4/27 B. 8/4/27 C. 9/4/27	128A.	10/4/27	14 „	Nil
Other causes	19/4/27	218B.	19/4/27	16 „	Had dysentery and recovered before "mothering"
Dysentery	A. 2/5/27 B. 2/5/27	166B.	2/5/27	17 „	Nil

E VII.

ity among 32 pairs of twin-lambs, show-
r both of each pair became affected.

nt. of occasions h both members he pair were affected		Per cent. of occasions in which one member of the pair was affected	
	Per cent.	No.	Per cent.
	34·4	21*	65·6
	45·0	11†	55·0
	—	—	—

in died at birth.
n died at birth.
vin died at birth.

TABLE VIII.

Comparing the incidence of dysentery in lambs inoculated with sheep's whole blood and uninoculated (control) lambs on farm D.

	Inoculated lambs		Uninoculated lambs		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
No. of live births ...	124		174		298	
No. and per cent. of dysentery cases	41	33·0	38	21·8	79	26·5
No. and per cent. of dysentery deaths	30	24·2	29	16·6	59	19·8
Per cent. mortality ...		73·1		76·3		74·7

Intradermic Tuberculin Testing in Cattle.*

By T. DALLING, J. H. MASON and W. S. GORDON.

We have carried out many tests in cattle, using concentrated tuberculin intradermically, and some of the points investigated have already been published.

Two herds of milch cows have been under our observation for the past three years, and, using the double intradermic tuberculin test twice a year, we have succeeded in separating reactors from non-reactors and in keeping the non-reactor sections tubercle free. Farm A had 103 milk cows and heifers, and, when tested in 1925, sixty-seven reacted positively and thirty-six gave a negative result. From the non-reacting cows, six were chosen for the supplying of milk for calf-rearing and removed to a special calf-rearing farm; thirty-one of the best cows were removed to a new farm. These cattle have been tested twice annually for the last two-and-a-half years and those remaining in the herds are still non-reactors. It has been necessary to add to these herds: double intradermic testing has always been carried out on these additions before their admission to the herds.

Farm B had ninety-six milk cows and heifers. Three years ago, application of the double intradermic test showed that fifty-eight were affected with tuberculosis.

The thirty-eight non-reactors were dealt with as on Farm A, except that for one-and-a-half years they were kept on the same farm as the reactors but in separate sheds. An occasional reactor was detected in subsequent tests, but one-and-a-half years ago the owner took over a new farm to which the non-reacting cattle were sent: since that time no further reactors have been noted. Additions to the herd are dealt with as on Farm A. Subcutaneous tests have also been done on two occasions and the results agree with the double intradermic tests.

Calf-rearing on these two farms has been under our observation for three years. The farmer, unfortunately, insists that the calves suck their dams once; they are then removed to the farms on which the non-reacting cattle are kept and are fed on milk from these cows. Intradermic tuberculin tests have been carried out on these calves at regular intervals, and of over 100 calves so reared only two have shown reactions, while the majority of control calves kept on the original farms and fed on milk from the reacting cows have reacted at some stage in their lives to the tuberculin tests. It is then evident that the double intradermic test is a satisfactory test to employ in the cleaning up of a herd and in the testing of cows supplying milk for the feeding of calves on a presumably clean farm.

In addition to the cleaning up of herds, we have studied the reactions produced by the double intradermic method of testing on other cattle, and it may be of interest to note the following:—

(*a*) *Standardisation of Tuberculin.*—The tuberculin used for the tests has been standardised by the intradermic guinea-pig method, and we are convinced that a tuberculin so standardised, and passed as equal to the Frankfurt standard, is an efficient preparation for intradermic use in cattle.

Tuberculous cattle will not show the same degree or type of reaction in every case with the same tuberculin; in fact, similar amounts of the same tuberculin, injected into different parts of the skin of the same animal, produce different reactions, but experience in reading reactions will cause one to classify different degrees and types of reaction as positive.

(*b*) *Strength of Tuberculin.*—While most of our tests have been made with tuberculin equal in potency to the Frankfurt standard, lately we have used tuberculin of double and even quadruple strength. In our experience, a cleaner cut reaction is obtained by such a preparation. We have had the feeling that a strong tuberculin, while giving clearer positive reactions, produced some degree of non-specific reaction even in non-reacting cattle, and that the more marked reaction in tuberculous cattle was due to this non-specific reaction. Our numerous tests, however, convince us that, allowing for an increase in non-specific reaction, a strong tuberculin gives a more definite and more easily read positive reaction than one of standard potency. In all our experience there have been only four cattle in which a very marked degree of difference in reaction has occurred when a standard and a fourfold strong tuberculin were used, and it is very probable that, using tuberculin equal to standard, these cows would have been passed as non-reactors. We believe that the benefit derived from the use of this strong tuberculin is that there will be fewer indefinite reactions recorded. Indefinite reactions do occur and some cattle will continue to show such indefinite reactions at all tests, no matter how often applied. With the use of strong tuberculin these indefinite reactions are reduced in number but are still observed. It may be that when purified tuberculin has been thoroughly worked out and is available for general work, the "indefinite reaction" will be further reduced or will disappear entirely.

(*c*) *Comparison of Subcutaneous and Intradermic Tests.*—We have tested many cows and heifers by both methods, usually leaving an interval of about one month between the two tests, and as a rule the results are in very close agreement. We have, however, records of the testing of cattle in which exactly opposite results have been recorded. In one cow only have we observed that positive reactions were obtained by the use of tuberculin subcutaneously, while the intradermic tests were negative. This cow was tested on many occasions and never once did she react to the intradermic tests, while on every occasion a typical temperature chart followed the use of diluted tuberculin subcutaneously. This cow died, and *post-mortem* examination showed advanced generalised tuberculosis, which was confirmed by guinea-pig inoculation.

In five cows only are we able to record the reverse, *viz.*, they reacted to the intradermic test while subcutaneous tuberculin gave no reaction. These cows were tested intradermically and a month later received a dose of tuberculin subcutaneously. They reacted typically to the first test but gave an entirely negative reaction to the second test. In six months' time they were again tested by both methods, one month elapsing between the tests, and the results were as before. These cows are now isolated and will be subjected to further testing in the near future.

* Paper presented to the Section of Comparative Medicine of the Royal Society of Medicine, March 28th, 1928. Reprinted from the July, 1928 No. of the *Proceedings* of the Society, Vol. xxi, No. 9.

It should be noted that a double dose of tuberculin was used for the subcutaneous test and temperatures were taken every three hours after injection.

Cases of similar results are recorded in the literature, but after a series of over 300 tests by both methods these five cows are the only ones which in our hands have yielded such results.

The conclusion one would draw from the large series of tests we have carried out is that the double intradermic method of tuberculin testing is reliable and the amount of error is probably somewhat smaller than when the subcutaneous method is used.

DISCUSSION.

Dr. LESLIE SHEATHER asked how the quadruple strength concentrated tuberculin was prepared.

Dr. F. C. MINETT asked whether, in Mr. Dalling's experience with the double intradermal test, it had not been observed that young tuberculous bovines reacted more intensely than older ones.

Major-General Sir JOHN MOORE asked Mr. Dalling whether, in view of the fact that the standardised tuberculin gave no reaction and the tuberculin of quadruple strength did, he considered the former tuberculin was perfectly standardised or not.

Mr. GEORGE W. DUNKIN: Mr. Dalling has stated that when cows which had reacted to the double intradermal tuberculin test give birth to calves these calves were permitted to suck their dams once only and were then removed to tubercle-free premises. Was it to be assumed therefore that the colostrum of tuberculous cows did not contain the tubercle bacillus?

Major DALLING (in reply) said that in his experience the degree of reaction among young tuberculous bovines was neither greater nor less than that observed among older animals. The standard tuberculins used for comparative tests had been standardised on guinea-pigs and cattle very many times. He was well aware that the colostrum of tuberculous cows might contain tubercle bacilli, but, unfortunately, to meet with the owner's wishes, the risk of young calves being infected with tubercle from such colostrum had to be taken. He could not, off-hand, give the contents of the medium used for the production of quadruple strength tuberculin.

Bovine Tuberculosis in the United States.*

Bovine tuberculosis has many aspects of interest to the medical man, not the least of which is the part it plays in causing disease in human beings. The bacillus can be conveyed to man both in meat and in milk; but as milk is the only animal food largely used in the raw state it is by far the more important. The value of a pure milk supply cannot be over-estimated, and it is of considerable interest to know what the United States are doing to produce this. Tubercle-free milk, in theory, need not necessarily be clean milk; and a tubercle-free herd of cattle is not necessarily a healthy one. Nevertheless, the work of the last ten years in America has shown that, in practice, when a herd is freed from tuberculosis the general hygiene improves, the poor stock becomes weeded out, the milk yield increases in individual animals, and the bacterial purity of the milk improves enormously. At the same time the price of milk does not rise.

The general campaign in America takes two forms—anti-tuberculosis work among stock and the passing of pure milk ordinances. In both respects it is recognised that little can be accomplished without the aid of the stock owner and the milk producer, and so in all cases the first and probably the most important step is to educate the people generally. The forming of accredited herds was the first active step, taken ten years ago; and the herds thus passed as free from bovine tuberculosis have increased from 204 in the first year to 142,500 at the end of 1927, while nearly two million herds are under supervision. The accredited herd plan has now naturally evolved into an accredited area plan, and at the present time nearly one-third of all the counties in the United States are either accredited or are under process of becoming so. One of the most active of the States in this work is New York, and some account of the methods adopted there may be of interest.[1] All testing is confined to areas—a township being the unit—and 90 per cent. of the herd owners must sign up before testing commences. The test adopted is the ophthalmic-intradermal one, and it is believed that the double method has definite advantages over any single method. Arrangements are made so that all the cattle in the unit can be tested in a week, and a sufficient force of veterinarians is employed to do this. All reactors are branded, segregated, appraised, and shipped to a public abattoir, where they are slaughtered. All infected premises are disinfected according to printed instructions, and infected herds are retested at intervals of two or three months until a clean test is obtained. Even though no lesions are observed at necropsy, if one or more reactors are found the herd is treated as infected. All additions to herds must be made from other accredited herds, and after 90 per cent. of cattle have been tested a quarantine may be instituted prohibiting the introduction of cattle which have not been tested within sixty days. Accredited herds are retested yearly. This plan has now been in operation for two years with very beneficial results, and over half the cattle in the State have been tested. It is estimated that by the year 1936 all the herds in the State will be accredited.

The other plan for the eradication of bovine tuberculosis is to a certain extent complementary. This consists in the adoption of pure milk ordinances, and so far more than 2,000 towns and cities have done this. In Chicago, for example, such a pure milk campaign has been instituted.[2] All milk sold must be from healthy cows, and in spite of numerous objections from the milk trade and others this has been enforced. The supply has remained ample, while the consumption of milk has been raised by 15 per cent. to nearly a million and a quarter quarts daily. The yield of milk per cow has increased, and the price has remained at the old level (14 cents. per quart). Improved quality and further safeguarding of the milk supply at its source have been secured through inspection of dairy farms. Tuberculin testing has become immensely popular, and it has been found that the cleaning up of the disease in cattle has been accompanied by a general improvement in hygiene and methods. Most striking of all, the bacterial quality of the milk has improved by 45 per cent. during the past year, and infant mortality (children under 1 year) has decreased by 11.5 per cent., while deaths from

* Reprinted from the *British Medical Journal*, July 14, 1928.

[1] E. T. Faulder: *Journ. Amer. Vet. Med. Assoc.*, 1928, lxxii, 771-781.
[2] H. M. Bundesen: Ibid., 810-812.

(Continued at foot of first column next page.)

Caponising Poultry.

A capon is a male bird from which the reproductive organs have been removed at an early age. The operation, called caponising, causes a change in the entire physical make-up of the bird and alters its general shape and plumage. The advantages of caponising may be listed as follows:—

1. Larger and heavier fowl at killing time.
2. Sweet and finer flavoured meat.
3. Much higher selling price.
4. Lower production cost, due to greater efficiency in the utilisation of the feed consumed.
5. More quiet disposition, standing confinement better.
6. Useful for hovering young chicks.

Caponising may be done at any time of the year. All the heavy breeds of poultry make good capons. The most convenient size, preferred by most operators, is a bird about six weeks of age and weighing one and one-half to two pounds. The comb has just begun to develop at this age, so the sexes may be distinguished, and the testicles are still somewhat smaller than navy beans.

Preparation.

The birds to be caponised should be starved for twenty-four hours previous to the operation. This leaves the intestines empty, and they do not obstruct the view when locating the testicles. The birds should be kept in a clean, airy place, so that the feathers and feet will not be unduly soiled. After the operation the birds should not be allowed to gorge themselves, although reasonably heavy feeding usually does no harm.

An upturned barrel or box of proper height makes a very convenient operating table. An abundance of light is necessary to locate the testicle through the small opening between the ribs. Out in the open on a sunny day makes the best operating amphitheatre. When working inside, a small electric head lamp will be found useful.

The birds are held in position by fastening one cord around the wings and one around the legs, letting the weights hang down over the side of the operating table. A bow shaped like the half of a barrel hoop is sometimes used to hold the bird properly stretched out.

The instruments necessary for the operation are:—scalpel, spreader, sharp pointed hook, testicle removers, and two cords, each having a hook at one end for ready fastening to the wings or legs, and a weight at the other end. The newer designs in caponising instruments have many advantages over the old styles.

The spreaders should not be too clumsy nor have hooks that will injure the tissues. The type built on the plan of a pair of scissors with an easily operating locking device is preferred. The testicle remover must be wide enough to grasp the entire testicle, otherwise slips will occur. The usual width of one-half inch is sufficient for ordinary birds but is too narrow for older or early developing birds. This instrument should also be provided with a secure locking device and be free from projecting parts. A small, light scalpel is preferred to a heavy one. The sharp-pointed tenaculum is used to tear the abdominal peritoneum.

Some antiseptic should be used to keep the instruments clean and to dampen the feathers over the wound area.

Seat of Operation.

With the bird well stretched out the feathers are plucked from the region in front of the thigh. The incision is made between the last two ribs. This is very important because an error at this point makes the operation a difficult one. An incision further forward will pierce the lungs and one further backward may injure the kidneys. In addition to these accidents the operation is made tedious by difficulty in locating the organ sought.

Both testicles may be removed from the same opening, but usually this is found more difficult and the injury to the bird is liable to be greater than where openings are made on both sides.

The Operation.

With the bird placed left side up, well stretched out on operating table, feathers plucked and last rib located, an incision is made by thrusting the sharp scalpel between and parallel to the two last ribs. The incision should be made through the skin and the intercostal muscles. (It is not necessary to pull the skin either forward or backward as the incisions through the skin and muscles do not approximate when the bird is released.) The incision is made about one inch in length. The spreaders are inserted so that the points extend through the visceral surface of the ribs.

The testicles are brought into view by puncturing the peritoneum with the sharp-pointed hook. The characteristic yellowish-coloured and bean-shaped testicle can be readily recognised if the incision has been made correctly. When one has difficulty in locating the testicle it often helps very materially to have an assistant raise and manipulate the front part of the body. Occasionally one finds a testicle black in colour, which is hard to distinguish from the posterior aorta.

The removers are next inserted through the opening, the testicle firmly grasped and with some torsion and a quick jerk the testicle is removed. The quick jerk can be used only in removing small and undeveloped testicles. More torsion and gradual traction are necessary when the testicle is well developed. To prevent "slips" one must be careful to remove the testicle intact and not leave a small piece of testicular tissue or tunic anywhere in the abdominal cavity.

The spreaders are then removed, the bird is turned over, and the operation is repeated on the other side.

No surgical dressing of the wound is necessary.

After-care consists of feeding the birds soft and easily digested food for a few days, and housing them in a place

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(*Continued from previous page.*)

enteritis and diarrhœa in children under 2 years have been reduced by 33.2 per cent. Similar results are reported from other localities, and many neighbouring counties and cities are following the examples set by New York and Chicago.

America is evidently taking this problem very seriously. Although the results of the strictly anti-tuberculosis campaign will not be apparent for several years yet, the general improvement of milk has had an immediate and beneficial effect, and this has provided us with an example which deserves the most serious consideration of those concerned with public health in these islands.

where they will not have opportunity to fly off the floor until the wounds are well healed.

SEQUELÆ.

Hæmorrhage: Internal hæmorrhage may be caused by puncturing the posterior aorta or injuring the kidneys. Death usually takes place suddenly and the carcase may be dressed for food. Poorly constructed instruments are often the cause of injuries resulting in hæmorrhage.

Wind puffs are formed by the accumulation of air beneath the skin. They usually occur between three and six days after the operation, and may become very severe and distort the figure beyond recognition. The accumulation of air is due to injury of the lungs or abdominal air sacs which cause interference with the natural air passages. This trouble is usually easily remedied by puncturing the skin and letting the air escape.

Slips: When a piece of the testicular tissue is left in the abdominal cavity some regeneration will occur. Enough secretion will be produced by these cells to develop male characteristics and defeat the purpose sought. Slips are not potent males and should be culled from the flock as soon as possible.

FEEDING CAPONS.

Capons may be fed the same ration as other poultry. Various mixtures of ground corn and wheat products containing about 12 per cent. animal protein in the form of milk or meat scraps form an excellent growing mash. Plenty of greens, grit and oyster shell helps materially. Two weeks before marketing the birds should be confined in smaller pens and the corn and milk ingredients of the ration increased.—Mo. State Poultry Experiment Station. —*Ex. Veterinary Medicine*, Chicago, August, 1928.

N.V.M.A. Congress.

RAILWAY INFORMATION FOR THOSE MEMBERS INTENDING TO TRAVEL TO NEWCASTLE-UPON-TYNE FROM LONDON.

1S 56/7, **3S** 34/-, **1R** 113/2, **3R** 68/-.

WEEKDAYS.

King's Cross.	Newcastle.	Newcastle.	King's Cross.
a.m.	a.m.	a.m.	a.m.
1 10*ql*	7 2	1 15*mxl*	7 5
4 45	11 10	1 31*sl*	7 20
	p.m.	1 50*mxsl*	7 30
7 15*r*	2 49		p.m.
9 30*rb*	3 3	8 0*r*	1 30
10 5*r*	3 36	9 10*P*	3 0
10 15*r*	5 15*w*	10 25*r*	4 30
11 15*P*	4 57	p.m.	
11 50*r*	5 29	12 55*r*	6 30
p.m.		1 54*P*	7 35
1 5*rc*	6 49	1 2*r*	8 0
1 15*r*	6 53	2 45*r*	9 25
1 40*r*	8 19	4 26*r*	10 5
4 45*P*	10 25		a.m.
5 30*r*	10 38	8 5	2 45
5 35*r*	11 41	11 0*sxsl*	5 15
	a.m.	11 13*sl*	5 55
7 25*sxr*	12 57	—	—
7 40*sxrsl*	1 12	—	—
8 25	3 4	—	—
10 35*sl*	4 35	—	—
10 45*sxsl*	5 16	—	—
10 45*so*	5 49	—	—

SUNDAYS.

King's Cross.	Newcastle.	Newcastle.	King's Cross.
a.m.	p.m.	a.m.	a.m.
8 30	5 42	1 31*sl*	7 20
11 40*r*	6 8	1 50*sl*	7 30
p.m.			p.m.
5 0*r*	11 58	10 5*r*	5 13
	a.m.	p.m.	
7 40*srl*	1 12	1 58*r*	7 45
8 25	3 4	2 20*r*	8 30
10 35*sl*	4 35	4 55*ra*	10 30
10 45*sl*	5 16		a.m.
—	—	7 8	3 35
—	—	11 0*sl*	5 15
—	—	11 13	5 55

a Runs from 22nd July to 9th September inclusive.
b Saturdays only, and not after 25th August.
c Saturdays only, and not after 8th September.
l Light refreshments can be obtained on this train.
mx Mondays excepted.
P Pullman cars only, 1st and 3rd class. Supplementary charges are made by this train.
q Sleeping car. (Berths will be available for use after 11-30 p.m.)
r Restaurant car.
s Sleeping car.
so Saturdays only.
sx Saturdays excepted.
w Passengers can arrive Newcastle 4-57 p.m. by Pullman car express from Darlington. Supplementary charges are made by this train.
1S denotes First Class Single Fare.
3S ,, Third Class Single Fare.
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EXCURSION TICKETS.

King's Cross to Newcastle-on-Tyne: Depart Saturdays, 14th July to 22nd September, 2-10 p.m. Arrive Newcastle-on-Tyne, 9-9 p.m. Return time: Saturday (8 days), Saturday week (15 days), 10-40 a.m. Third-class return fares, 45s. 6d.

TOURIST TICKETS.

Tourist Tickets are not issued for Newcastle-upon-Tyne, but members can take such tickets for either Tynemouth or Whitley Bay, and break journey at Newcastle. Fares from King's Cross or Broad Street, 1st class return, 113/6; 3rd class, 68/- return. Travel by any train.

Routes, *via* Doncaster and York.
Doncaster, Leeds and Harrogate.
Doncaster, Askern, Church Fenton and Harrogate.

Members who propose to travel direct from their own locality are advised to approach their stationmaster as to travelling facilities, or procure an appropriate handbill or booklet issued by the Railway Companies.

The Veterinary Record

25th August, 1928.

NEWCASTLE-UPON-TYNE.

The Scene of our Coming Congress.

"Canny Newcasel," coal and ships, grime and smoke. Why should the "National" hold its Congress in a city having such a reputation in the popular estimation? Surely there can be little to interest a modern veterinary surgeon in a city whose very life blood is industry.

But pause one moment, good reader; the popular estimation may be at fault. If you live North of the Tweed it may help you to form a truer impression of the city and its environs if we point out that "canny," in the language of Tyneside, has a meaning directly opposite to that you are wont to associate with the word.

Our antiquarian members will know that the Pons Aelii of Roman times spanned the river, it is believed, at the point where the Swing Bridge now joins the Northern with the Southern bank on the low level, and also that parts of the Roman Wall itself have recently been discovered in the vicinity of St. Nicholas Cathedral. Better known parts of Hadrian's famous rampart lie within easy reach of the modern city; these will certainly be visited by those enthusiastic enough to make the journey. If sufficient applications are received for tickets, a whole day excursion will be run, which, passing through some of Northumbria's fine western country, should appeal equally to ladies and to gentlemen.

Little is known of the city in pre-Conquest times, beyond its name, Monkchester, and the fact that it was burnt in the 9th century by the Danes. About 1,080 a Norman castle was built, and in the reign of Henry II a new castle was raised, from which the modern city derives its name. The Keep and Black Gate remain, now almost surrounded by lines of railway, and used in part to house archæological treasures, amongst which are some of the finest Roman stones in the country.

Coming down the ages, Newcastle was three times besieged by the Scots, and twice captured, being occupied for a year in 1640 by Leslie's Covananters.

For her gallant conduct during one of these sieges the city received her proud motto, "*Fortiter Defendit Triumphans.*" Nearly three hundred years later, Newcastle seems likely to undergo another siege, and peaceful capture by an army of veterinary surgeons coming from South and West, as well as from the traditional North. This time there will be no resistance, but instead a real North country welcome from the men of Tyneside and the surrounding district.

Houses dating from the spacious days of Queen Elizabeth are still to be found in the Side, and Sandhill, near the Quay, and Charles I was held captive within her walls by the Scots, during the Civil War.

In more recent times her sons have added to Newcastle's fame in pioneer work, principally in engineering achievement:—

Stephenson, father and son, builders of railways and bridges. It is interesting to note that the railway crossing at the Eastern entrance to the Central station, over which visitors from the North will pass, is believed to be the largest in the world. The High Level Bridge, carrying both rail and road over the Tyne, stands as a lasting monument to Robert Stephenson.

Lord Armstrong, the city solicitor, who later became famous as the pioneer of hydraulic machinery, and whose name is associated with the famous Elswick works, the birthplace of many fine ships.

Sir Charles Parsons, the inventor of the steam turbine, performed his experiments with the little "Turbinia" on the Tyne.

The graceful "Mauretania," fastest ship in the world, first saw the light of day on the banks of the "Coaly Tyne."

Newcastle is well equipped with educational establishments, foremost amongst these being the college which bears Lord Armstrong's name, which our members will be able to see for themselves during the Congress week. It forms the Faculty of Science of the University of Durham, and contains an Agricultural Department, towards the cost of which a member of the veterinary profession, Clement Stephenson, made a munificent contribution. Then there is a College of Medicine, forming the Faculty of Medicine of the University of Durham. There are also schools, amongst which should be mentioned the Royal Grammar School, dating from 1525, one of its famous pupils being Collingwood, Nelson's lieutenant at Trafalgar.

The public parks, Jesmond Dene and Armstrong Park, the Hancock Museum of Natural History, the Laing Art Gallery, Grey Street with its Greek style of architecture, the open space of the Town Moor, and Gosforth Park, are a few of the other places worthy of a visit. For a fuller description of this old city we would commend to our readers the Souvenir Guidebook which will be on sale during the Congress, at the Local Secretary's office, or better still, may be obtained in advance by completing the form now circulating with the *Veterinary Record.*

The surrounding country of Northumberland cannot fail to appeal to lovers of natural beauty; many parts of it are as fine as any to be seen elsewhere. One charming section will be seen on the excursion to the Roman Wall, passing through Chollerford, where a

glimpse of the pretty valley of the North Tyne will be obtained. The whole day excursion on Friday, September 7th, will afford an opportunity to see another fine expanse of moorland on the journey to Alnwick, the Guardian of the North in less peaceful days. Then on to Bamburgh, with its ancient castle overlooking the sea, once the seat of the kings of Northumbria, and later the home of Grace Darling, the lifeboat heroine. The return journey will be made through the quiet villages of Eastern Northumberland, by Alnmouth to Warkworth, joining the main road at Felton and so to Morpeth and Newcastle.

Let us, at once, decide to take part in the peaceful occupation of this fascinating old city, and with the aid of the Souvenir Guidebook prove for ourselves the fallacy of the popular conception of Newcastle and Tyneside. In so doing we will assure the success of the Congress, and that, after all, is the thing that matters.

CLINICAL AND CASE REPORTS.

On an Affection of Horses resembling "Grass Disease."

By J. R. Rigby, M.R.C.V.S., Lytham, Lancs.

After reading the discussion on the paper by Messrs. Eaton Jones, Pillers, and Matthews, printed in the *Veterinary Record* for June 16th, 1927, I am prompted to record briefly the following cases which occurred on one farm between December, 1926, and June, 1927. I have heard of other practitioners who have had somewhat similar cases from time to time in this district.

Case I. December, 1926. A three-year-old colt, out at grass, was noticed to be doing badly but received no special attention for some time; when I was called to attend it was in a wretched state—emaciated, profuse salivation, unable to swallow, "tucked up" abdomen, patchy sweats, trembling of shoulder and flank muscles, and standing with its tail pressed into the corner of the loose box. In two days it was unable to rise, and so was destroyed.

I regarded this as a case of what is usually termed "grass disease." It differed in no essential respect from the later stages of several others I have met with in the last few years, some of which commenced with colic (impaction), and after recovery from the acute symptoms went on to the emaciation type, the disease extending over several months, and finally ending in recovery or death in about equal proportions.

Case II. May 28th, 1927—11a.m. Chestnut Shire mare, 6 years old, useful type, in good condition. Colic, P. 120 small, soft and T. 103°. Respirations rapid, membranes injected, sweating in patches about the elbows and flanks, subacute pain, scraping with fore feet and walking round uneasily, appearance anxious, slight salivation (increasing later), rectum empty and lined with sticky mucus, exploration difficult, bowel distended with hard mass of fæces. Prognosis, grave. Treatment:—oil, ammon. carb., nux vom., arecoline, enamata and hot fomentations. She grew gradually worse, though never very violent, and the temperature rose to 105°.

Died quietly about 7 p.m. She had been turned out to grass for about a fortnight. A careful examination of the field was made, but no poisonous plant was found. While I was in attendance on this case the owner told me that a fortnight previously he had brought up a two-year-old from the field one evening suffering from colicky pains.

A drench was given, and the colt seemed easier; it was left, but was found dead next morning. This case was reported to the police, and an examination for anthrax was negative. The owner stated he was present at the *post-mortem* and that death was due to "twist of small bowel."

Case III. June 2nd. 10 p.m. Brown vanner mare, four years old. P. 70, small and soft. T. 102½°, dejected appearance, profuse salivation (front of stall saturated), no pain, slight trembling, and patchy sweating. Bowel sounds absent, no distension (in fact rather "tucked up" in flank), rectum empty save for one or two hard, sticky pellets, and the walls were covered with a tenacious mucus.

June 3rd. 10 a.m. Condition practically unchanged, no movement of bowels and no peristalsis, but the patient drank a little water.

June 4th. Had colicky pains in the early morning; at 10 a.m. was fairly easy, with intervals of slight pain. Salivation increased and progressive difficulty in swallowing. P. 80, T. 103°.

June 5th. 10 a.m. Wretched appearance, gulping and retching when attempting to swallow, was very uneasy, sweating and trembling. When quiet stood with quarters pressed tightly into the angle of the wall. The hair of its tail was broken and rubbed off. P. 100. T. 103°. Died 7 p.m. A *post-mortem* examination was made the same night. Stomach slightly congested, fluid contents. Bowels were not every full. The ingesta was sticky, tenacious and blood-stained, and so adherent to the bowel as to remove the mucous membrane when detached. The liver and kidneys were congested.

Case IV. June 3rd. 10 a.m. Chestnut Shire gelding, three years old. P. 120, small and soft. T. 103°. Slight salivation, bowels distended, rectal examination difficult, pain constant, not severe, evidenced by backing in stall and rubbing its shoulders against the sides of the stall. In appearance this case was very like No. I.

June 4th. Much worse, wretched appearance, pawing and much pain, free salivation. In the afternoon the animal was very violent and died at 3 p.m. A *post-mortem* examination was made the same evening. The stomach distended and full of fluid; there was an area of inflammation on villous portion. The small bowels showed patches of inflammation on the mucous membrane. Large bowels were fairly full, the ingesta being dry, and firmly adherent to its walls, the lining of which had areas of inflammation. The liver and kidneys were congested, the former having yellowish stained areas.

No analysis of the bowel contents was made. The animals had all been out at grass but not on the same pastures. All the pastures were examined twice—the herbage, trees, ditches, ponds, plantations, etc. — and nothing poisonous was found. Enquiries were made as to the possibility of malicious poisoning, but the evidence was against any likelihood of this.

Suspected "Grass Disease" in the South.

By Major J. J. DUNLOP, M.R.C.V.S., D.V.S.M.,
Chipping Norton, Oxon.

The case reported by Mr. W. A. Dickinson in the *Veterinary Record* of 21st inst., so entirely simulates one which I had on hand at practically the same time that I am sure they must be of the same nature. Like Mr. Dickinson, I had never seen "grass disease," and it was some days before it occurred to me that I was dealing with a case of it. To the best of my knowledge the disease has not before been reported as occurring in the South-West. If this was a case of "grass disease" it would appear to be spreading in some manner.

Subject. An eight-year-old hunter mare.

History. The mare was examined by me in April, and passed sound. She was exposed for sale in May at public auction, but did not reach the reserve, and was taken home. Early in June I was again asked to see her as she had not done well since returning from the sale. I found her suffering from a "dealer's cold," and she was treated accordingly. She responded to treatment and was turned out to grass.

On July 13th I was called to the mare. She had been seen lying in the field and apparently suffering from colic. I found her very dull and showing slight colicky pains. Temperature 101·4°, pulse full, and not alarming, but the mucous membranes were deeply injected. The mare occasionally stretched herself in an excessive way. I was somewhat puzzled and gave a guarded diagnosis of some narcotic poisoning. Arecoline hydrobromide subcutaneously was given, which took longer to act than usual, but ultimately much flatus and later fæces were passed. The mare then seemed much easier and was left eating a mash.

July 19th. Not feeding, although apparently hungry. Mouth and throat examined, to which she objected strongly. Teeth were dressed. A continuous champing of the jaws was noticed, slight regurgitation after drinking, and a greenish discharge from nose. Quivering of muscles of shoulders and stifle region and occasional stretching. Beginning to get "tucked up." Frequent attempts at micturition and no difficulty in passing urine at times. Took a mouthful of oats whilst I was there, and after chewing a long time made great efforts to swallow, but seemed unable to do so. "Grass disease" was now suspected and the owner warned of the likely result. The condition continued, gradually getting more pronounced, and the "tucking up" especially, although the mare kept wonderfully bright and occasionally took a little water. Little treatment was attempted, excepting drenching with gruels, etc., and rectal injections of same, and hypodermic injections of strychnine.

On July 25th, as it was obvious the end was drawing near, the mare was destroyed. She was by now extremely "tucked up."

Post-mortem examination showed considerable enlargement of the spleen, which was of a very tarry consistence on cutting. The bowels were very thickened throughout, and presented a condition in some respects not unlike that seen in a case of Johne's disease. The mucous lining was dark-coloured and inflamed. There was much bile staining throughout. Kidneys showed pus in the cortex and the mucous membranes of the uterus and bladder were catarrhal. I should like to have the opinion of someone conversant with "grass disease" as to the nature of this case.

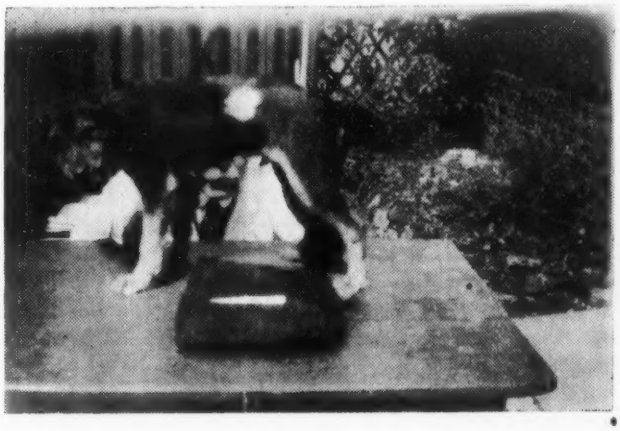
Skewer Extraction from a Puppy.

By A. E. B., London.

The following note is sent in answer to the Editor's appeal for clinical material. The subject matter was gleaned recently whilst doing "locum" duty.

A pup of the nondescript variety, about three-months old, and of the weight of a medium-sized "Pom.," was brought into the surgery suffering from a swelling on the left side in the region of the back ribs in front of the flank, and about an inch from the spinal ridge. The swelling was circumscribed, denuded of hair and obviously ripe for opening. The little patient was lively and playful, but would snarl or snap when taken up and nursed; it was in quite fair condition, ate well, and the bowels functioned normally.

When the abscess had been evacuated of its sanguineous pus content there stood out the pointed end of what turned out to be a portion of a wooden skewer such as is used for sticking together portions of cat's meat. It was about 3½ inches long, and its base was truncated and about half-an-inch wide. It was withdrawn by forceps from its rather firmly-embedded position between two of the posterior ribs; the wound was cleaned up, and an iodine dressing applied with a bandage. Recovery was uneventful, and seen about a week or so afterwards there was no sign of fistula or other untoward sequelæ, and the patient is putting on weight.



The history, shortly, is that about three weeks before one saw it the pup had scrambled under a ragged wooden fence and hurt his back. The owner was confident, in answer to interrogation about cat's meat, that none was ever offered to it, but later I was informed that a lady friend of the owner had recollected that "Fido" had, when accompanying his mistress on a visit, swallowed the cat's supper, and undoubtedly the skewer and all.

The points in the case that appear to my mind worth noting, are:—

1. The remarkable fact, not new, of course, that an animal of this size should swallow so comparatively large and formidable an object; that it should pass through the stomach and other vital parts, and ultimately make its exit into the outer world again, with apparently little inconvenience and constitutional disturbance to the host.

2. How necessary it is to be chary of accepting statements confidently given with a view to assist diagnosis, but which too often mislead.

3. And, finally, I venture to suggest there is some interest to be found here in the medico-legal aspect of the case. It is easy to conceive circumstances, similar to those related here, wherein, instead of recovery, death might have ensued. Suppose, for example, a valuable animal had been our subject, and had died from septic infection following the removal of the offending material as in this case. Might it not be contended that if X-rays had been employed early to locate the trouble and its cause, followed by an operation, the animal would in all likelihood have recovered? And that, having failed to make use of modern scientific methods and appliances, the practitioner could be held guilty of culpable negligence and mulcted in damages?

My answer to the query is that the even course and successful termination, as demonstrated in this case, warrant the submission that there is occasionally much virtue in a little tardiness. Furthermore, the chances are rather more than likely that had one acted upon the doctrine of "to delay is dangerous," and had proceeded too precipitately with the operation in search of the "foreign body," the animal probably would have died.

In the healing art, as in other directions, the ways of nature are truly wondrous.

I trust the photo may be helpful.

Tracheo-bronchitis of the Dog due to the Nematode Worm *Oslerus osleri* (Cobbold) 1879.

By A. W. Noel Pillers.

Early in January, 1927, Mr. W. R. McKinna, M.R.C.V.S., D.V.S.M., of Huddersfield, forwarded me the lower part of the trachea and bronchi of an eighteen-months-old fox terrier bitch. On the mucous membrane, about one and a half inches in front of the bifurcation and on the lower aspect, were seven circumscribed elevations about the size of grains of wheat. Behind these were two other nodules—one mesial and the other to the left about the size of round maize. The left bronchus contained four small and one large, the right had one large and five small nodules, all on the lower aspect, close to the bifurcation—a total of twenty nodules. Under the hand lens they were seen to be elevations of the mucosa with worms coiled up in them. An occasional parasite was projecting from the lesion and three were found free in the preservative. In 1906, whilst making a *post-mortem* examination on a terrier in London, I found a similar worm nodule and the damaged parasite was preserved, awaiting further study with authentic worms. Through the kindness of Professor S. H. Gaiger and Lieut.-Col. G. H. Walker, F.R.C.V.S., Professor Karan Ellahie, of the Punjab Veterinary College, forwarded to me, soon after this, one of the tracheæ from cases described years previously by Professor Gaiger. An examination and comparison showed that Mr. McKinna's and my own material contained the nematode *Oslerus osleri*.

On informing Mr. McKinna of the nature of his specimen, he furnished me with the following interesting account of the case:—"In September, 1926 I was consulted regarding a bitch which had a chronic cough. The owner stated that she had been bred in the country at a hunt kennels, that the mother had had a similar type of cough and that a dog puppy of the same litter had died after being affected n a like manner, although the actual cause of death was unknown. An examination revealed pharyngitis and bronchitis. There was slight elevation of the temperature but the general condition and appetite were good. After a few days rest on a light diet and treatment the animal became normal, save for paroxysms of coughing, frequently brought on when she became excited or ran about. The possibility of tuberculosis came to my mind, but the general condition was so good and improvement soon took place. In the end a tentative diagnosis of tracheo-bronchitis, due to some focus in the pharynx, was made.

"After three weeks of antiseptic astringent treatment to the throat the patient was discharged greatly improved, but the throat painting was continued at home.

"During October and November the dog was seen periodically and although the disease appeared to be partially arrested, the throat was still inflamed and the tonsils were becoming enlarged and prominent. About a month later she was again brought into hospital with a return of the troublesome coughing. The general condition was still fairly good. The size of the tonsils suggested that they were possibly the focus of infection. On December 24th, tonsilectomy was performed under morphia and a local anæsthetic. Ten days later, no improvement having taken place, the bitch was destroyed at the owner's request.

"At the *post-mortem* examination all the organs of the body, with the exception of the larynx, trachea and bronchi were found to be normal. The mucosa of the larynx and upper two-thirds of the trachea was markedly congested. This lesion appeared again at the bifurcation. Here and protruding into the lumen of the tubes were numerous nodules, and projecting from some of these were short, thread-like worms. Undoubtedly the nodules were the result of the chronic irritation to the mucosa by the parasites and the presence of the latter was the cause of the chronic cough."

I have quoted somewhat fully from the clinical description of the case because it contains several features of interest.

Oslerus osleri measures from 4 to 6 mm. in length. A good deal yet remains to be known concerning its morphology, life history and position among nematodes. It was first described by Osler(1) in 1877 as *Strongylus canis bronchialis*. He discovered it whilst investigating an outbreak of what now appears to be distemper among some puppies belonging to the Montreal Hunt Club. Out of eight animals examined on *post-mortem*, five showed lesions. Immature worms were found in the bronchial mucus. Cobbold(2) called it *Filaria osleri*. The condition is variously described as verminous bronchitis (Osler), filariose tracheo-bronchique (Neumann), and tracheitis verrucosa verminosa (Rabe). According to Neumann(3)

Renault noted the lesions in 1835, presumably in France. In 1883 Rabe(4) in Germany gave an account of two cases; one which he saw in 1877 was a Greyhound recently imported from England and which died of nervous distemper; the other was an Italian Greyhound which died the day after admission into hospital in 1881, with an obstinate cough. Blumberg(5) recorded two cases from Kasan (European Russia) in 1882. One animal had thirty-eight nodules (twenty-three in the trachea, eight in the left bronchus and seven in the right), and the other only four. Both of these authors appear to be of the opinion that the hosts show no symptoms. Doroschenko(3) is stated to have seen miliary granulations of the dogs trachea due to worms in Russia in 1906. Professor Gaiger discovered it in the Punjab in 1909. In a personal communication (26-9-25) he informed me that all his material was obtained from foxhounds which had been sent to a hill station in the Himalayas during the hot weather; that the lesions caused no very noticeable inconvenience and might not have been found had not the whole pack died from surra and been *post-mortemed*, and that he had never found it amongst the pariahs of the plains, although he had carefully examined many hundreds.

These six cases are all the clinical records I can find after an extensive search of the literature. It will be seen that the parasite is apparently widely distributed, even if somewhat rare, having been encountered in France, Germany, Russia, England, Canada and India. In two cases it has been found in packs of hounds. Most observers point to an absence of symptoms. Although Osler headed his article "Verminous bronchitis in dogs," it appears certain that he was dealing with distemper in puppies, for three out of eight of the animals submitted to *post-mortem* examination had no worms in the trachea or bronchi. Cobbold(2) is obviously quoting Osler when he refers to the "fact that they produce a destructive canine epizooty." The history, course, symptoms and *post-mortem* examination of the present case, which was also closely associated with a pack of hounds, seem, however, to indicate quite clearly that it may produce definite symptoms.

A visible discharge from the nose is not a feature of the condition; one can, therefore, only suggest the examination of a tracheal swab for larvæ as a means of strenghtening diagnosis. It is conceivable, however, that larvæ of other genera may be found in odd numbers around the larynx. The use of the bronchiascope would, of course, be a more exact method, and in its absence tracheotomy might be performed and a cystoscope used to light up the trachea. Indeed, on completely closing the pulmonary ends of the bronchi and the slit in the trachea of the original specimen, I obtained what I considered a characteristic endoscopic picture.

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(3) Neumann, Prof. L. G., "Parasites et Maladies parasitaires du chien et du chat," Paris, 1914, p. 262.
(4) Rabe, Prof. Dr. C., "Tracheitis verrucosa verminosa der Hunde," *Deutsch. Zeitschrift fur Thiermed. und Verg. Path.* Band 9. 1883, p. 180.
(5) Blumberg, Prof. C., "Ueber Wurmknoten auf der tracheal und Bronchialschleimhaut des Hundes." *Ibid.* Band 8. 1882, p. 223.

REVIEW.

Third Progress Report of the Foot-and-Mouth Disease Research Committee.

The Third Progress Report of the Foot-and-Mouth Research Committee bearing date June, 1928, is now published and can be obtained from any of His Majesty's Stationery Offices, price 5s. It will be remembered that the Committee's terms of reference are "to initiate, direct and conduct investigations into foot-and-mouth disease, either in this country or elsewhere, with a view of discovering means whereby the invasions of the disease may be rendered less harmful to agriculture."

Up to the end of March, 1927, the sum of just under £28,000 has been spent on the investigations, yet the causal agent, the discovery of which is so vital in measures necessary for repression, remains elusive. When the causative organism cannot be seen, cannot be cultivated on artificial media and is recognisable only by its effects on susceptible animals, it is quite true that circumstances of experiment and investigation become so "difficult and tedious as to dismay all but those possessed of a stout heart and much patience."

The Committee lays stress on the fact that of the ten scientific workers engaged during the past three years of investigation, no less than six have been selected for permanent appointments elsewhere. The loss of so many trained workers is obviously prejudicial to the success of the enquiry, and there can be no question as to the correctness of the views of the Committee when it reports that it "is not clear how the difficulty can be surmounted until this country has a larger permanent scientific veterinary service from which to draw." Suspension of work at the Experimental Station, Pirbright, during the year, in consequence of structural alterations, has also been a drawback, research work therefore being confined to small laboratory animals at the Ministry's Laboratories, New Haw, the Lister Institute, and the National Institute for Medical Research. "Notwithtanding these difficulties the work undertaken has resulted in the acquisition of valuable knowledge concerning the pathology, epizootiology, and immunology of foot-and-mouth disease. Some of this knowledge is susceptible of immediate useful application, and all of it is a sound contribution towards the complete understanding and ultimate control of the disease."

Propagation of the Virus. Experiments abroad, especially those of the U.S.A. Foot-and-Mouth Disease Commission working at Strasburg, have been no more fortunate than in this country. Attempts are being made to propagate the virus in cultures of the cells of different tissues of animals susceptible to the disease, but it is too early to record results.

Multiplication and Distribution of the Virus throughout the Body. Multiplication of the virus is evidently associated with the formation of the primary vesicle, for a minute drop of vesicle fluid when diluted a million-fold will infect an animal. From the primary vesicle the virus soon reaches the vessels, and is distributed by the blood stream throughout the body. For two or three days after the appearance of the local lesion it can be recovered from the blood and internal organs, but not on the fourth day

after inoculation. It was concluded that " it establishes itself in certain restricted areas alone, and that if it multiplies at all in the internal organs or blood it speedily dies out or succumbs to the natural defences of the organism."

Disappearance of the Virus in the Bodies of Living Animals. Lebailly's experience was that four days after full manifestation of the disease, sick animals ceased to be infective although they may still be salivating freely. Reppin (1927) believes that infectivity ceases by the fourteenth day after inoculation. The American Commission discovered one animal carrying the virus in its feet thirty-four days after inoculation. In Germany carcases of cattle killed during convalescence are regarded as free from infection and distributed for food. The Committee suggests that the highly infective stage of foot-and-mouth disease precedes the development of vesicles. Experiments of infectivity in cattle at different stages of the disease have been upset by the Experimental Station being out of action, and experiments on natural infection cannot be carried out with laboratory animals as the disease is not susceptible of spontaneous spread amongst them. It is however quite clear that in the living animal there is a process of natural disinfection, as, in a week after vesicles on feet and tongue have reached their maximum, infective material cannot be found.

Survival of the Virus outside the bodies of living animals. It is emphasised that carcases are potentially infective only when the animal was killed in the early acute stage of the disease, as in the living body the virus is destroyed so speedily that it usually disappears from the internal organs within a few days. Low temperature and dry atmosphere favours survivial ; light, especially ultra-violet light, is prejudicial. Kept chemically dry in the laboratory, it has been found active for two years, though under natural atmospheric conditions it has not survived longer than five months. Dried on bran it was infective after twenty weeks and similarly, on hay. On cow hair it survived for a month. " The virus of foot-and-mouth disease may persist in nature on inanimate objects much longer than the experiments of the earlier observers indicated, and that the materials on which it survives longest happen to be those which may actually be concerned in the spread of the disease. . . ." " It would appear that the persistence of the virus in carcases or in dried discharges upon fodder, hair, etc., is perhaps of greater epizootiłogical significance than the carriage in the bodies of recovered animals."

Disinfection of contaminated material. Experiments under this heading were carried out by Dr. F. C. Minett. It was found that carbolic and cresylic acids were less powerful against the virus of foot-and-mouth disease than against most non-sporing bacteria. Solutions containing free chlorine or iodine were effective in dilutions of 1 in 100,000 and 1 in 50,000 respectively, permanganate of potassium 1 in 10,000. The efficiency of mercuric chloride was unexpectedly low (1 in 250) while salts of copper were much superior (1 in 10,000) ; salts of zinc and lead were less effective than the latter. Dr. Minett found that the surface of miniature haystacks grossly contaminated with virus could be effectively disinfected by spraying with a solution of formalin without prejudicing the value of the hay as fodder. Grossly contaminated hides are capable of disinfection by soaking in one per cent. formalin solution for forty-eight hours, but value for leather is affected.

Destruction of the Virus by heat. The virus is rapidly destroyed by water at a temperature of 60° C. (140° F.)—that is a little hotter than can be borne by the hand without pain on immersion. The velocity of destruction is such that water at this temperature would destroy it in half a minute while with boiling water the rate would be considerably less than a millionth of a second. Heat, therefore, when feasible, is the simplest and best means of disinfection

Plurality of types of Virus. In addition to the two types discovered by Vallée and Carré—type O and type A—neither of which protects against the other, Dr. Waldmann, of the German Commission now (1928) describes three types, designating them A, B and C, Vallée's type A being identical with Waldmann's type B, and the Vallée type O the same as Waldmann's type A, Waldmann's type C being a new type. The existence of more than one type of foot-and-mouth disease virus complicates prophylaxis.

Susceptibility of Wild Animals. Experiments lend no support to the view that wild rodents play a part in the spread of the disease. Rodents other than guinea-pigs and rabbits were found to possess a natural resistance, and even when they were infected by inoculation did not spread the disease by natural means.

Immunity. The Committee states in the report that " an animal which has had an attack of foot-and-mouth disease is resistant to inoculations for from six months to one year." Hitherto three method of inducing specific immunity have been practised in the field. The first, and hardly to be recommended, is by inoculation with a live strain of virus of low virulence. The second, used extensively on the Continent, is by a considerable quantity of blood serum from a convalescent or hyper-immunised animal, protection only lasting for from ten to fourteen days. The third practised in Germany is the inoculation of serum and virus simultaneously. The ideal to aim at is a lasting immunity without an actual attack of the disease, and consequent danger of the spread of infection. Whether, as in rabies and canine distemper, a useful measure of protection lies in the inoculation of killed virus of the disease remains yet to be sufficiently tested in cattle. Vallée has shown that cattle inoculated with virus treated with formalin resisted inoculations of virulent blood. Bedson and Maitland in this country, working with laboratory animals, have discovered that guinea-pigs could be protected by a formalised vaccine. " Various methods of killing the virus have been tried, but for the manufacture of a ' Vaccine ' a better method than treatment with dilute formalin has not yet been discovered." Immunity from the practical issue point of view seems somewhat hopeless and discouraging. " An immunity which will endure is beyond expectation, for even after an inoculation with the living virus, Roux, Vallée, Carré, and Nocard (1921) found that some animals ' could be re-infected within six months by the same virus.' Unfortunately, neither foot-and-mouth disease, nor influenza in man, leaves its victims a legacy entitling them to immunity from a further attack of the disease for the remainder of life."

J. M.

REPORTS.

Annual Report of the Veterinary Department of the Government of Northern Rhodesia for the year 1927.

The staff of the Veterinary Department in Northern Rhodesia comprises a Chief Veterinary Officer (J. Smith, M.R.C.V.S., D.V.H.), with Headquarters at Livingstone; a Veterinary Research Officer (R. A. S. Macdonald, B.Sc., M.R.C.V.S.), at the Field Experimental Station, Chilanga; six other Government Veterinary Officers; one Clerk, and fourteen stock inspectors. The number of European-owned stock in Northern Rhodesia is returned at 97,479 cattle, 18,035 sheep and goats, 5,281 pigs, 332 donkeys, 19 mules and 51 horses, while the number of native owned cattle is estimated at 319,767. Inspections during the year amounted to 318,808 European-owned cattle, and 268,035 native owned. A considerable number of cattle are imported from Southern Rhodesia, the Union, and from Ngamiland, and in transit to the Congo.

The majority of European-owned stock shows little improvement. "It would appear that Northern Rhodesia cannot at present expect to rear and mature highly-bred stock under ordinary ranching conditions. Whether the climatic conditions or a deficiency in the grazing, or a combination of both, are responsible for the deterioration which occurs cannot be definitely stated until further observations have been made." Grazing necessitates a large acreage per animal, fencing is very expensive, so the kraaling system with its unsatisfactory and unhygienic conditions during the rainy season, has to be maintained. In the case of large herds under ranching conditions it is impossible to provide extra foodstuffs, but in smaller herds such foodstuffs as veld hay, ground nut hay, ensilage and pumpkins can be provided. An increase in the production of ensilage is aimed at.

The native-owned cattle possess great potentialities to Northern Rhodesia. Their better care leaves much to be desired, waste of life is very considerable, and of a type which could be prevented if Natives could be persuaded to take more interest in their cattle. "At some future date the question of grading up the native-owned herds will have to be faced if the cattle are to find a market." Adverse conditions of grazing are greatly increased by the occurrence of veld fires, a crime in a cattle country and often deliberately malicious.

"The success which has attended the efforts to eradicate African Coast fever from certain districts in Southern Rhodesia has more than proved the adequacy of carefully supervised dipping." There are 159 dipping tanks, in Northern Rhodesia, chiefly on the farms of European owners, but in too few instances is a determined effort made to derive the fullest benefit therefrom. Careful dipping should always be carried our prior to the months when tick infestation is known to be the greatest. Dipping is practically non-existent amongst native stock; a menace to the stock of European owners is thereby constituted, but until native reserves are defined and occupied, scattered tribes and villages preclude the practicability of dipping tanks for native-owned herds.

A limited, but increasing demand for milk exists among Europeans engaged in mining areas, and organisation is required to make it possible to supply pasteurised or sterilised milk which, under the crude circumstances of native supply, would be the only safe procedure.

Sheep are mainly indigenous, and mutton for the larger settlements on the railway line is obtained from the South. Pig industry is susceptible of improvement, and sanitary measures in respect to infection with cysticercus cellulosæ require enforcing. No system of meat inspection by qualified persons exists in the Territory.

With regard to diseases of stock, the situation is very favourable compared with other African Territories. Of the more serious contagious diseases of cattle, bovine pleuro-pneumonia is confined to Barotseland. Movement is guarded against by police activity and the usual destruction of affected and the inoculation of the healthy is practised. At a Pan African Veterinary Conference, to be held at Livingstone, in November 1928, it is hoped to elicit *data* from the experience of other territories which will enable the Department to elaborate an acceptable scheme to free Barotseland entirely from the scourge.

Outbreaks of anthrax occur annually, but occurrence during the year have been fewer and mortality has been low owing, to some extent, to the use of vaccine maintained at Veterinary Stations in the farming centres.

Incidence of quarter-ill has been somewhat high, but mortality has been low, and outbreaks have been readily suppressed by the use of Blackleg aggressin.

Bovine contagious abortion is enzootic in many parts of the Territory, but occasions little loss. The greatest success in European-owned herds follows the use of live vaccine.

Bovine trypanosomiasis, too, is enzootic in many parts, but excepting in the Fort Jameson district it has not been of any very serious menace to the more settled areas. Attention is drawn to the possibility of the extension of Tsetse fly areas by means of motor transportation. Flies are attracted to large moving vehicles, and their transportation long distances into fly-free areas in appreciable numbers has been shown to exist. The Government Veterinary Officer, Fort Jameson, has put forward a suggestion that sheds be erected at suitable points on motor routes for the disinfection of motor vehicles, and should fly leave the motor vehicle for the greater attraction of the shed they could be entangled with bird lime or other suitable substance on the outside of the shed. As regards curative and palliative treatment, antimony, potassium tartrate, and also the sodium salt, intravenously, is practised, the posterior auricular vein being preferred to the jugular for this purpose. The palliative or prophylactic treatment is of inestimable value in the mining and tobacco industry district of Fort Jameson. Trypanosomiasis of the "Congolense" type was responsible for the almost total loss of a small herd of pigs in the Fort Jameson district.

Redwater and gall sickness are enzootic, but in indigenous cattle are of little economic importance.

Tropical piroplasmosis is a wide special enzootic in the Fort Jameson district. A dominant manifestation of the disease is the enlargement of superficial lymphatic glands. Affected calves become stunted in growth. Canine piroplasmosis is also recorded, imported dogs being highly

susceptible. If not early treated with trypan-blue, considerable mortality ensues.

A disease with the characteristic symptoms and *post-mortem* appearances of heart water has been observed, the transmitting agent, the Bont tick, existing in the Territory.

The existence of horse sickness is a factor operating against the introduction of horses into the Territory. Good results have attended the inoculation of horses in Southern Rhodesia and in the Unfon, but immunity is variable.

Ephemeral fever (three days' sickness) is seasonable during the rains and is of little significance, and bovine posterior paralysis in imported bulls, the ætiology of which is unknown, has been almost entirely absent.

Twelve cases of bovine tuberculosis and four cases of actinomycosis are recorded. A considerable amount of specific ophthalmia of cattle prevails in certain districts, chiefly amongst calves, and systematic dipping has a beneficial influence on incidence, as infection appears to be a mechanical process brought about through the agency of flies.

Bacillary necrosis, in a form responsible for a condition in calves known as "calf diphtheria," is commonly met with and typical necrotic foci with bacilli morphologically similar to the *B. necrophorus*, were observed in the kidneys of cattle.

Senkobo scab, a skin disease of cattle due to a Hyphomycete, is markedly evident during the rains and is of considerable economic importance. Demodectic mange also is very prevalent amongst native-owned cattle. Dipping exerts very little benefit in the latter. Another dermatitis commonly met with during the rains is sweating sickness of calves.

Considerable mortality occurs annually amongst calves. A disease widespread in its distribution is a paratyphoid with variable clinical manifestations, and due probably to a bacillus of the Gærtner paratyphoid group. A few outbreaks of white scour in calves are recorded.

Both rabies and canine distemper exist, the latter assuming at times enzootic characters. The eruptive form is commonly met with and an occasional sequel is repeated crying day and night for some days.

A very interesting report on cattle feeding experiments is given as an appendix by the Veterinary Research Officer, and especially into the so-called veldt poisoning and true vegetable poisoning. "The *data* yielded by the feeding systems, combined with the negative results of previous transmission experiments warrant the conclusion that the so-called veldt poisoning is a veldt-borne entity—either of vegetable or telluric origin. Vegetable poisonings are indisputably so."

Two interesting clinical cases by the Veterinary Research Officer were published in the issue of the *Record* of July 14th.

Southern Rhodesia.

The reports of the Chief Veterinary Surgeon and of the Director of Veterinary Research in Southern Rhodesia for 1927 reveal a continuation of the sterling work for which Mr. Sinclair and Mr. Bevan have been responsible in their respective offices during the past twenty years.

Those who have followed veterinary progress in Africa throughout this period will recollect that the major epizootics of rinderpest and pleuro-pneumonia have been steadily eradicated from the South of Africa northwards, and that the former is no longer existent to the South of the railway which traverses Tanganyika Territory from Dar es Salaam. Within this same great expanse of country, pleuro-pneumonia remains only in Bechuanaland and in a portion of Northern Rhodesia where veterinary opportunities have not yet received the financial and administrative support necessary to achieve eradication. It can with confidence be asserted that, where a Government so wishes, these epizootics, as others, can be successively controlled and then exterminated. But it requires a genuine will, and not merely a pious hope unaccompanied by the munitions of war.

Too often the direct voice of the veterinary chiefs is not heard by the Government and only a fractional echo reaches the all-powerful Treasury. Mutilation may be effected by the responsible Minister, or more frequently by such technical heads as agriculturalists when placed in charge of veterinary services, who, as is almost inevitable, have the interests of their own calling to serve. The annual system of Budget preparation is another feature which is often responsible for fluctuations in steady policy, for disease does not await the fortuitous combination of circumstances, but must be tackled when and where existent.

Rhodesia has set itself a splendid programme and is consistantly carrying it through. Of the big trio of African epizootics only coast fever remains there. These reports show the steady progress towards eradication, despite the fact that it may now safely be claimed that with present protection the disease is no longer an economic menace to the State. During 1927, from a cattle population of nearly two millions and a half, only 1,344 deaths occurred from this cause—less than six in every 10,000 animals.

As elsewhere in Africa, final eradication seems to await a more full understanding of some phase of the disease. Inexplicable "outbreaks" (sometimes limited to a single head) occur or recur: suspicion is thrown upon recovered animals and upon ticks or tick-stages not previously incriminated. Mr. Bevan rightly points out that these investigations can best be conducted in countries less clean and artificial than its efforts have enabled Rhodesia to become.

Attention can now be paid to diseases that appeared insignificant in the presence of the major menaces. Black-quarter and contagious abortion are important, and readers will be familiar with the Rhodesian view that this latter is not so far removed from the human Malta fever as is suspected to be the case in most other countries.

As in other African territories, trypanosomiasis occurs, particularly in and near the tsetse areas, but not exclusively so. Treatment has yielded good indications; but much remains for elucidation. Especially is desirable a knowledge of the trypanosome species concerned, the problem of immunity, and the control of *Glossina* by biological methods. The enormous fly-infested areas of Africa preclude any hope of extermination by bush-cutting and similar changes of environment: these can

only be effective in restricted and selected patches. There is one dipping tank to every one thousand cattle, and under the new Cattle Cleansing Act rapid progress with tick destruction is to be anticipated.

Rhodesia is already reaping the reward of her veterinary activities, for her cattle population supplied over 45,000 head for export, mostly to the Congo, and to the Union of South Africa for distribution to Europe as meat.

Control disease and build up markets, should be the plank of every Veterinary Department: neither purpose is complete without the other, for during the period of control, and even after eradication is accomplished, there must be a standing-by against recrudesence.

These reports show how dovetailed are investigation and the consequent application of the discovered knowledge and the employment of both towards the protection and utilisation of the money represented by the animal population. The respective writers and their staffs are to be heartily congratulated upon their constructive additions to the wealth of the Empire.

E. M.

Annual Report of the Veterinary Officer of the City and County of Newcastle-on-Tyne for the year 1927.

The report of the Veterinary Officer submitted to the Health Committee of the Corporation of Newcastle-on-Tyne shows a very satisfactory working of Veterinary Services for the year. Only six outbreaks of disease scheduled under the Diseases of Animals Acts occurred. These related to six animals dealt with under the Tuberculosis Order of 1925, and it is interesting to note that after compensation had been paid and adjustments made, a balance of 1½d. in favour of the Corporation remained. The City has not had a visitation of foot-and-mouth disease since 1924, though precautionary measures and restrictions were enforced in consequence of disease in the Midlands in the latter part of 1927, and remained in operation until 19th January, 1928. Three outbreaks of illness amongst pigs, suspicious of swine fever, were reported; one was proved to be acute swine erysipelas—an infectious non-scheduled disease; another was due to acute gastro-enteritis, and an "all clear" decision was given to the third after the lapse of a few days. A suspected case of rabies in a dog, a suspected case of parasitic mange in a horse, and a suspicion of anthrax in two carcases of beef, and in the sudden death of an animal, all proved abortive.

The chapter on Live Stock and Meat Supplies contains some very interesting information. For instance, quoting from Official Agricultural Statistics, the number of cattle, sheep and pigs in Great Britain have increased numerically since the previous year by 34,777, 545,933 and 542,696 respectively, making a total of 7,485,690 cattle, 24,607,752 sheep and 2,888,127 pigs. Of dairy cattle the total number is 2,790,703, an increase of 41,417 on the previous year. These advances show a healthy tone in Live Stock Industry, the Northern Counties, and particularly Northumberland in cattle and sheep, being responsible for the great bulk of the increase.

In the Newcastle Cattle Market, 32,697 cattle and 182,409 sheep were exhibited for sale during the year, being an increase on the previous year, of 3,329 cattle and 34,948 sheep. This is the largest number exhibited since the year 1922, but is far behind the totals of the year 1887, when 110,074 cattle, 8,780 calves, 325,473 sheep and 28,964 swine passed through the market. The great majority of pigs are now disposed of through licensed lairs.

The total number of animals slaughtered on licensed premises within the City amounted to 206,204, an increase of 43,562 on the previous year, and comprised 1,740 horses, 19,246 cattle, 5,249 calves, 137,120 sheep and 42,849 pigs. Of carcases and internal organs examined, tuberculosis was found in 469 animals. 432½ animal carcases and 4,499 lbs. of meat were condemned and destroyed, 163 carcases being condemned on account of tuberculosis. For purposes of the Public Health (Meat) Regulations 1924, 1,793 visits were made to meat and provision shops, restaurants, stalls, vehicles, etc. and altogether 16,920 visits of inspection were made to slaughter-houses. For some years the question of the provision of central abattoirs, new live stock markets, auction rings and lairages, as a combined scheme, has been under consideration, but it has not yet been possible to come to a decision.

During the year, 304 vessels carrying foodstuffs arrived at the Quayside, chiefly from Denmark, Holland, Canada and Sweden. There was a considerable falling off in the imports of American bacon and hams, but deficiency in quantity was more than made up by importation of Danish bacon. Fresh carcases from the Continent are under Ministerial Prohibition. To meet the Commonwealth of Australia's Regulations in respect to the importation of cooked foodstuffs into that country, 52 certificates of wholesomeness and freedom from disease of material were issued to an exporting meat preserving firm, new bye laws in respect to the humane slaughtering of animals by means of a mechanically-operated instrument were confirmed by the Ministry of Health on the 30th December, 1927, but are not applicable to any member of the Jewish faith.

Under the Milk and Dairies Order of 1926, 197 visits of inspection were made to 29 registered cow sheds within the City and 334 milch cows inspected. It was amongst this number that the six cows were destroyed under the Tuberculosis Order of 1925, as previously mentioned. The keeping of cows in the City has appreciably fallen off since 1918, when 622 cows were registered.

International Veterinary Congress.

Meeting of the Organising Committee.

A meeting of the Organising Committee of the International Veterinary Congress was held at 10 Red Lion Square, London, on Friday, July 6th, when the following were present:—Mr. Hugh Begg, Dr. O. Charnock Bradley, Lieut.-Col. J. W. Brittlebank, Professor J. B. Buxton, Mr. J. H. Carter, Mr. J. C. Coleman, Professor J. F. Craig, Mr. A. Golton, Professor F. T. G. Hobday, Mr. J. Holroyd, Mr. R. Hughes, Mr. J. R. Jackson, Mr. G. H. Livesey, Mr. G. H. Locke, Dr. J. McCall, Mr. J. W. McIntosh, Major-General Sir John Moore, Captain E. Brayley Reynolds, Dr. J. T. Share-Jones, Dr. A. Leslie Sheather, Mr. Trevor F. Spencer, Mr. A. Spicer, Mr. H. Sumner, Mr. E. Alfred West, Professor A. W. Whitehouse, Mr. J. Willett and Professor G. H. Wooldridge.

Apologies for absence were received from Sir John M'Fadyean (absent on account of the serious illness of Lady M'Fadyean), and from the following :—Mr. J. F. Healy, Mr. G. H. Gibbings, Mr. D. E. Pugh, Major C. W. Townsend, Mr. J. W. Baxter, Mr. F. W. Emery, Mr. P. Wilson and Mr. T. Eaton Jones.

In the absence of Sir John M'Fadyean, Dr. Bradley was elected to the Chair.

The minutes of the previous meeting were read and confirmed.

Permanent Commission. Dr. Bradley reported that a meeting of the Permanent Commission had been held in Paris on the 14th May, 1928, when representatives in place of those who had died or resigned were elected. On the nomination of the British Government, Sir John M'Fadyean and Dr. Bradley had been elected to represent this country, and as in accordance with the Bye-laws of the Permanent Commission two other representatives might be elected for the country in which the Congress was to be held, Colonel J. W. Brittlebank and Dr. F. C. Minett had been elected in this capacity. The Permanent Commission had accepted the invitation sent by the Organising Committee to hold the next Congress in London, and it had been decided that the most suitable date would be August, 1930. The next meeting of the Commission would be in May, 1929, when the programme of the Congress must be submitted for approval. It was also decided that National Committees should be formed and that the members of the Permanent Commission should be authorised to form these in their respective countries.

Treasurer's Report. The Treasurer, Mr. Bullock, submitted his report as follows :—

Income.

	£	s.	d.
Balance brought forward from previous statement, July, 1926	3,953	19	11
Dividends	397	10	0
	£4,351	9	11
Balance at Bank	79	9	9
£4,050 War Loan at cost	4,031	15	0

Expenditure.

	£	s.	d.
June 24th, 1926, Dr. De Blieck's expenses, London	8	16	5
Dr. Bradley's expenses, Paris	22	12	11
Income Tax, 4 years...	206	17	6
Printing	1	5	0
Bank Charges	0	12	2
	4,111	5	11
	£4,351	9	11

The Treasurer's Report was approved.

Reconstitution of Organising Committee. It was resolved that the Organising Committee of the 1930 Congress consist of the Members of Council of the Royal College of Veterinary Surgeons, together with six representatives to be appointed by the Council of the National Veterinary Medical Association, and the following gentlemen, Dr. W. Horner Andrews, Mr. Hugh Begg, Mr. F. W. Emery, Mr. J. F. Healy, Mr. J. J. R. Jackson, Mr. T. Eaton Jones, Dr. J. Mc.I McCall, Dr. F. C. Minett, Mr. J. H. Norris, Mr. W. A. Pool, Mr. E. Brayley Reynolds, Captain A.W. Noel Pillers, and Mr. Arnold Spicer, with power to add to their number.

Time and Place of Congress. It was resolved that the Congress be held in London in the week commencing Monday, August 4th, 1930, and that the Secretary be instructed to submit to the Committee at its next meeting particulars of suitable rooms in which to hold the Congress.

Officers. The following appointments were unanimously made :—

Chairman—Sir John M'Fadyean, M.B., B.Sc., M.R.C.V.S., LL.D.

Hon. Treasurer—Lieut.-Col. J. W. Brittlebank, C.M.G., M.R.C.V.S., D.V.S.M.

Hon. Secretary—Professor J. B. Buxton, M.A., F.R.C.V.S., D.V.H.

General Secretary—Fred Bullock, LL.D.

Official Address. Mr. Bullock reported that he had received the approval of the Council of the Royal College of Veterinary Surgeons for the office of the College to be the headquarters of the Organising Committee, if that were so desired.

It was resolved that the thanks of the Committee be conveyed to the Council of the Royal College for their kind permission to allow the use of the office of the College as the official address of the Organising Committee.

Subscriptions. The amount of the subscription for membership of the Congress was fixed as follows :—

Ordinary Members, £1.

Associate Members (*e.g.*, students and others not eligible for ordinary membership), 10/-.

Lady Members, 5/-.

National Committees. The Secretary was authorised to communicate with the members of the Permanent Commission requesting them to organise National Committees in their respective countries and to state that in due course a draft programme would be submitted to them showing the subjects proposed to be treated at the Congress.

Special Committees. The Executive Officers were appointed as a Committee to prepare a draft programme of subjects, with power to co-opt other members.

Vitamin F, discovered by H. M. Evans, is essential for growth and development of sexual maturity. In experiments, it has been found that lettuce and liver contain vitamin F.—*Veterinary Medicine*, Chicago.

That milk is a wholesome and valuable food is to a degree indicated by the fact that physical, mental and moral progress has been more rapid in those countries where milk and other dairy products are consumed in considerable quantities. *Veterinary Medicine*, Chicago.

Copper, according to some investigators, is an essential factor in the diet of man and animals. The rôle of copper has not been definitely determined. It appears to have a definite influence upon the hemaglobin content of the blood. —*Science.*

DIVISIONAL REPORT.

Eastern Counties Division.

MEETING AT BURY ST. EDMUNDS.

It was unfortunate that the break in the long spell of hot, dry weather coincided with the holding of the summer meeting of this Division at Bury St. Edmunds on Friday, July 27th, as it had been planned that the gathering should incorporate a bowls competition for the Shipley Cup, and ladies had been invited for what was pre-eminently a social occasion. A thunderstorm at lunchtime heralded a sousing afternoon, so that not only was the attendance seriously affected, but it was under some difficulties that the game on Captain P. R. Turner's excellent, but drenched, bowling green was carried through.

The members met together at Everard's Hotel for the business meeting, at which the President, Captain W. Shipley, took the chair. There were also present: Capt. V. Boyle, Captain H. Mitton, Professor E. B. Reynolds, Captain J. F. Thurston, Captain P. R. Turner, Capt. W. Waters, Capt. W. H. Wortley and Colonel W. A. Wood (Hon. Secretary), with Messrs. R. F. Bain and A. Eccles as visitors.

Apologies for absence were received from Capt. T. J. Bosworth, Messrs. C. T. Bray, H. Buckingham, J. Buckingham, Prof. J. B. Buxton, Major A. F. Castle, Messrs. J. M. Currie, R. E. Glover, Major T. G. Heatley, Capt. W. J. Leyshon, Messrs. G. T. Matthews, H. L. Roberts, J. Smith and H. E. Wilkinson.

The *minutes* of the previous meeting, which had received publication in the *Record*, were taken as read and were confirmed.

New Members. On the proposition of Capt. Turner, seconded by Professor Reynolds, Mr. A. Eccles, of the Ministry of Agriculture, stationed at Ipswich, was unanimously elected to membership of the Division, as was Mr. R. F. Bain, also of the Ministry, on the proposition of Capt. Wortley, seconded by Capt. Boyle.

Alteration of Rules. The PRESIDENT introduced consideration of the next item on the agenda: "Revisions and alterations of the Rules of the Society." He said that some time ago, at a meeting of the Council of the Division, the question of the rules was brought up, and there were several suggestions made as to their alteration. As a result, a committee was formed to re-draft them or to make such amendments as were deemed necessary. That committee had now completed its labours, and he would ask the Secretary to read the resultant report.

The HON. SECRETARY read the report in question.

The PRESIDENT: You have heard the Committee's report on the suggested alterations of the rules of the Society. Has any gentleman any remarks to make?

Captain THURSTON: I should like to congratulate the Committee on the very able way in which they have carried through their work, and on the alterations to the rules which they propose. (Hear, hear). I move that the report be adopted by the meeting.

Captain BOYLE seconded, and the motion was carried unanimously.

CONSIDERATION OF PROPOSAL TO FORM AN INSPECTORS' SECTION.

The PRESIDENT: The Secretary will read you the correspondence concerning this matter. The "National" Council sent round to each Division a suggestion that each Division should form a Veterinary Inspectors' Section. That was brought up at the last meeting and as, in our case, there are two Counties affected by this request, it was decided that the Secretary should negotiate with the individual Inspectors' Associations concerned, and he will now acquaint you with the result of his correspondence.

The Hon. SECRETARY: I wrote to the Secretary of the Suffolk Veterinary Inspectors' Association and the Secretary of the Norfolk Association also, and in my letter I stated that we had discussed the proposal at our last meeting and asked them if they would give me their views as to what they would like done about it; whether they would like to carry on as they were—as local County Associations—whether they would like to give up their County Associations and become a Branch of the Eastern Counties Division of the "National," or whether they would like to carry on their work locally, but still have a section formed in the Eastern Counties, where they could on special occasions call a meeting, and any resolutions that they passed could be put before the Council of the "National" by the Division's representative on that Council.

I have had no reply from Suffolk, but the following from Mr. H. P. Standley, junr., the Hon. Secretary of the Norfolk Veterinary Inspectors' Association:—"A meeting of the above Association was held to discuss your letter with reference to the formation of a Veterinary Inspectors' Section of the Eastern Counties Veterinary Medical Association. The meeting was of the opinion that the interests of the Norfolk Veterinary inspectors would be best served by carrying on this Association as before, but at the same time was in favour of the formation of a Veterinary Inspectors' Section of the Eastern Counties V.M.A., so that matters more especially concerning veterinary inspectors could be discussed and then, if desired, any resolutions be submitted to the National Veterinary Medical Association."

The PRESIDENT: You have heard Mr. Standley's letter, which we are glad to have received. (Hear, hear.) I feel very strongly about our having received no reply from the Suffolk Veterinary Inspectors' Association.

The Hon. SECRETARY: I saw the Secretary of that Association and it did not seem to me that he was going to call a meeting. There was a further letter which I received from the "National," which I find I have not got with me, but its purport was that, where Divisions formed Veterinary Inspectors' Sections, the officers of the Division should also be officers of the Section, so that they could know what was going on and thus be in a position to advise the Council of the "National" when that body wanted information.

The PRESIDENT: The "National" themselves have a Veterinary Inspectors'—or, as it is now called, a Veterinary Officers'—Section, and they are very anxious that the various Divisions should do likewise locally. We have taken certain preliminary steps as a result of their request to us, and we have had a reply from the Norfolk Inspectors' Association, saying that they prefer to carry on as they are

and allow their own body to function, but at the same time they are in favour of the formation of a Veterinary Inspectors' Section for the Eastern Counties V.M.A., so that matters more especially affecting veterinary inspectors should be discussed and, if thought desirable, resolutions could be forwarded to the Council of the N.V.M.A. That seems to me to be a very reasonable reply, as they would thus establish a line of communication with the "National."

Captain THURSTON: Essex have an unofficial branch—Mr. Mulvey tells us when things are in the air, and we go over there and discuss the matter. In that way the Essex people carry on quite well, and I do not think they would be prepared to join the Division. I think it is more or less a local matter for each County, and that the "National" is of no use whatever in fighting the battles of the inspectors in their respective counties.

The PRESIDENT: The idea of the "National" is to get everybody together and that they being the parent body, and representative of all the Divisions, could exercise far more influence with a county council than could any local body. The Division can tell its grievances to the "National" and hand them over to the larger and more influential body.

Capt. THURSTON: That may be all right on paper, but I do not think you will get the "National" to fight the County Council Committees.

Professor REYNOLDS: One may think that now, but it must be of benefit to secure the aid of a representative body. Moreover, it has been already proved, and repeatedly, that the organisation of the "National" has been productive of very great good, and not least in the veterinary inspector's sphere of work. (Hear, hear).

The Hon. SECRETARY: The "National" have certainly done a great deal. In Scotland, for example, they have got in touch with the authorities, and there have been very big alterations made in consequence of pressure brought by the "National"—but unless you bring things before them they cannot, of course, take steps.

Capt. TURNER: I admit it would be a good thing to get a Veterinary Inspectors' Section, but how many members of this Division are not inspectors? Why cannot we incorporate the two things and work, as a Division, not only from the practitioner's point of view, but from the inspector's point of view?

After further discussion, the Hon. Secretary was instructed to reply to the "National" to the effect that as the Eastern Counties Division consisted almost entirely of veterinary inspectors, it did not see its way clear, for the time being, to form a separate Veterinary Inspectors' Section.

It was also agreed to inform the Norfolk Veterinary Inspectors' Association of the reply which was being sent to the "National" and at the same time to invite them to bring to the notice of the Division any matters which they desired, when the Division would do anything they could to help.

PRESIDENT'S ADDRESS.

The PRESIDENT then gave his address from the chair, as follows:—

As we are endeavouring to make the business part of this meeting as concise as possible, I do not propose to bother you and delay the proceedings with a lengthy address. However, on taking up my duties as President there are just a few remarks I wish to make.

At the time of my election, my proposer, Captain Turner, remarked that though I hesitated to accept this office, he knew really that I was inwardly itching to accept it, although I did not appear to jump at the offer.

Well, Gentlemen, I must admit that to a large extent I was itching to accept it, but I am such a terribly busy man that I felt that from my own interests I ought not to do so. My vanity, however, quite easily gained the upper hand and I feel sure you will understand those feelings, as it has always been an ambition of mine to become President of this Society.

My grandfather was, if not one of the actual Founders, one of the earliest and staunchest members of the Society, which was, in those days, in spite of inconvenience in travel, much more strongly supported than it is now. The members then made it perhaps rather more of a social gathering than we do generally, and once a year had a dinner. This appears to have been a great attraction and a great asset to the Society. Of course those dear old gentlemen thought a great deal more of dinners than we of to-day do, and it is probably due to the fact that we cannot so well afford the expense as they could, but if you Gentlemen feel that there would be any chance of success, I should be very glad to organise this next autumn a dinner, and I suggest that we fix our Autumn Meeting fairly late in the season, when we could arrange for interesting practical demonstrations, and finish off with a dinner. If you think it reasonable I would do everything in my power, and I am sure our worthy Secretary will, to help to make a great success of it from our side.

In my father's earliest days he was Secretary and eventually President, and, although I say it myself, did a tremendous lot of good to the functioning of the Society, and I feel that we very greatly miss the support of him and his "confrères." (Applause.)

In view of what my family has done before me I am sure you realise how keen I am to carry on the good work in my own humble way, and how honoured I feel to have been asked to occupy the leading position in this old Society. I can assure you that I have done, and always will do, everything in my power to keep the Society going, and if only you Gentlemen and our absent brethren give us your support we shall be able to claim to be one of the most successful Divisions of the National Veterinary Medical Association.

It is a great struggle for the Secretary to get a good attendance at meetings, but in spite of this the Society is in quite a good financial position. We have fifty-two members, of whom forty-seven are subscribing members, which yields us an annual income of £24 13s. 6d. We have a balance at the Bank of £56 19s. 10d., a sum of money which I think is extremely satisfactory.

We have, though, I am sorry to say, £15 15s. 0d. outstanding in unpaid subscriptions, about twenty-seven members out of forty-seven being in arrears, which I hope will be reduced to a minimum by the end of the year.

Just recently, one of our members, Mr. Moran, of Beccles, has met his death under unfortunate circumstances, and I should like to move a resolution that the Secretary be

instructed to write to his widow to offer our sincerest sympathy in her very tragic loss. (Hear, hear.)

I will not detain you any longer, as I know we are all anxious to partake of Mr. Turner's kind hospitality, for which, on behalf of the Society, I sincerely thank both himself and Mrs. Turner. (Applause.) There is only one request that I make of you, and that is, that I hope you will all do your best, in the Bowls Tournament, to wrest the Cup from our friend Mr. William Turtle, who, if we do not dispute his authority, will come to consider himself the master bowls player of the E.C.V.M.S. (Laughter and applause).

The President was very heartily thanked for his stimulating address.

Benevolence. It was unanimously agreed to devote the sum of £5 to a certain benevolent object.

Next Meeting. The suggestion contained in the President's address in connection with the next meeting of the Division, to be held at Yarmouth in early September, was modified to the arrangement of a luncheon, to be followed by a business meeting, after which consideration would be given to a paper, on "Skin Diseases of the Dog," or some other subject relevant to canine practice.

Specimens. Capt. WORTLEY exhibited a fowl suffering from a cutaneous affection of the skin of the neck, which he believed to be lupus. Colonel Wood undertook to examine the specimen.

Capt. TURNER showed an unusuallv large os cordis from a bullock, which was, moreover, united as a single bone and was not, as is usual, in two portions.

Professor REYNOLDS exhibited a photograph of one side of a foal's chest (the right) showing a number of broken ribs. They were broken at birth, and in such cases the foals generally died in about twenty-four hours, but this animal lived for three weeks. The photograph showed the amount of ossification that had taken place in the ribs. There were actually seven ribs broken ; as a rule, one would not find more than three.

On the proposition of Capt. WORTLEY, seconded by Prof. REYNOLDS, the President was accorded a hearty vote of thanks for his conduct of the meeting.

The members then proceeded to the residence of Capt. and Mrs. Turner, where they enjoyed the hospitality of a delightful tea.

Those who could stay then hied them to the bowling green.

The Bowls Competition—a "knock-out" of seven up—was very keenly contested, the Final Round being a very close fight between Mr. Wilfred Waters, of Halstead, and the President, Mr. Waters eventually winning by the narrow margin of one point. The Proceeds of the Competition, amounting to £3 7s. 6d., are to be presented to the Victoria Veterinary Benevolent Fund.

W. A. WOOD, *Hon. Secretary.*

Victoria Veterinary Benevolent Fund.

MEETING OF COUNCIL.

REVISION OF GRANTS NECESSITATED.

A meeting of the Council of the Victoria Veterinary Benevolent Fund was held at 10 Red Lion Square, London W. C. 1, on Thursday, July 5th, when the following members were present:—Lt.-Col. J. W. Brittlebank in the Chair, Professor J. B. Buxton, Professor J. F. Craig, Mr. A. Gofton Mr. F. L. Gooch, Mr. G. H. Locke, Mr. J. W. McIntosh, Mr. G. P. Male, Major-Gen. Sir John Moore, Mr. A. M. Munro, Lt.-Col. P. J. Simpson, Mr. S. H. Slocock, Mr. H. Sumner, Mr. E. Alfred West and Professor G. H. Wooldridge.

Apologies for absence were received from Messrs. H. P. Standley and W. Jackson Young.

The minutes of the previous meeting were taken as read and signed as correct.

Secretary's Report. The Secretary reported that since the previous meeting he had received the following new subscriptions and donations :—

	Subscription. £ s. d.	*Donation.* £ s. d.
C. Hartley	1 1 0	
W. Scott	0 10 0	
Central V.M.A.(Collecting Box)		1 17 11
W. W. Smart		1 1 0
W. Littlewood		2 0 0
G. Thatcher and Son... ...		2 2 0
D. Imrie		0 10 6
The Bombay-Uganda Co., per Mr. J Carmichael		1 11 6
H. W. Caton		2 2 0

Cases. Owing to the receipt of a number of applications from widows in very distressing circumstances, and there being no means of providing assistance urgently required without reducing or discontinuing some of the grants already made, the Council decided to take into consideration the whole of the cases now on the books.

After very careful consideration it was resolved to discontinue the grants in the following cases :—

49, Widow, aged 70, now eligible for old age pension.

11, Widow, aged 66, Living with married daughter.

16, Widow, aged 75, receiving old age pension and grant from National Veterinary Benevolent Fund.

47, Member, aged 68.

In the following cases it was resolved to make the reductions indicated :—

50, Widow, aged 78, receiving old age pension and living with married daughters. Reduced from 10s. to 5s. a week.

96, Widow, aged 43, six children. Reduced from 30s. to 20s. a week.

102, Son of member, aged 49, unemployable. Reduced from 10s. to 5s. a week.

It was resolved to continue the grants now made in 29 cases, the total weekly payment in these cases amounting to £19 5s. 0d.

New Cases. Several new applications for assistance were received and it was resolved that grants be made as follows :—

120, Widow, aged 27, four children, aged 5, 4, and 3 years, and baby 2 months old. Left destitute and in debt. Grant of £1 a week in addition to the emergency grant of £5 made by the Executive Committee, which was approved.

122, Widow, aged 33, two children, aged 8 and 6½, no income and in delicate health. Grant of £1 a week.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

September 1st to 7th—N.V.M.A. Congress at Newcastle-on-Tyne.

Tickets for Congress Functions, etc.

To facilitate the work of the Local Secretary (J. R. Rider, M.R.C.V.S., Ivycroft, Carmel Road, Darlington), members who will be attending the Congress at Newcastle-on-Tyne are urged to complete and return to him at the earliest possible moment the blue application forms for tickets (for the various functions, etc.) which are now being issued with the *Record*.

. . . . . .

Golf.

The Northumberland Golf Club, Gosforth Park, Newcastle-on-Tyne, has kindly given permission to members to play over the course, during the Congress week, on payment of the usual green fees, and without further introduction than that they are attending the Congress.

If members desire to play on the afternoon of Sunday, September 2nd, arrangements will be made for them to do so, but they are particularly requested to send a notification to that effect to the Secretary of the club, Mr. Eric Hunter, at the above address.

Public Health Congress.

Veterinary Section Papers.

The Times report of the proceedings of the Royal Institute of Public Health Congress, held in Dublin recently, states :—

"In a paper on 'Some Problems in Meat Inspection,' Professor J. T. Share-Jones, President of the Royal College of Veterinary Surgeons, London, said that regulations for this purpose should be so framed and administered as to inflict the minimum disturbance of a regular supply of this essential article of diet available for those who are in greatest need of it. When dealing with essential food supplies their paramount duty was to see that those in need of it had wholesome food at a price which it was possible for them to pay. After some discussion a resolution was adopted declaring that the risk which those engaged in animal husbandry were required to carry was a menace to the industry, and that the time had arrived when the risk should be removed from the individual and be pooled by a system of insurance of all engaged in the industry.

"'The Grading of Milk' was the subject of a paper read by Mr. J. McAllan, chief veterinary inspector, Aberdeen. He stated that a producer in Aberdeen had thoughts before the War of a tuberculin-free herd, and he tested several lots of cattle when they arrived from Ireland with surprisingly pleasing results. He now gets heifers and young cows over, isolates them for a month, and then tests. Not more than one in seven of the young cows reacts, and not more than one in twelve of the heifers fails the test.

"'Milk Bottles as a Possible Cause of Disease,' was the title of a joint paper by Dr. E. G. Gibbs Smith, Medical Officer of Health, Teddington, and Prof. F. T. G. Hobday, Principal of the Royal Veterinary College. The great majority of people, they said, were now receiving milk which was far more liable to contamination than it was by the old method. They suggested that authorities should be given power to condemn unsuitable storage and delivery vessels. There should be a destructible retainer for retail delivery which would do away with bottle-cleaning difficulties. If used at all, bottles should be of a standard shape, and all bottles and containers should be capped in such a way as to make it easy to remove the cap without any dirt entering the bottle. It was the duty of the public health authorities not to let the pecuniary interests of large distributors stand in the way of the abolition of any method of milk distribution which either does or is likely to jeopardise the health of the community."

Personal.

Wills. Reid, Mr. Robert, M.R.C.V.S. (63), of Cromer Villa, Cupar, Fife (personal estate), £23,726.

Macadam, Mr. Alexander, M.R.C.V.S., of Gloucester Road, Bristol (net personalty £4,932), £6,007.

H.M. Stationery Office Publications.

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses :—London : Adastral House, Kingsway, W.C.2., and 28 Abingdon Street, S.W.1 ; Cardiff : 1 St. Andrew's Crescent ; Manchester : York Street ; Edinburgh : 120 George Street.

	Price Net. s.	d.	*Post Free.* s.	d.
House of Lords Papers and Bills, 1928. (88b, c and d). Slaughter of Animals (Scotland) Bill. Amendments to be moved in Committee	0	1	0	1½
(88xx). Slaughter of Animals (Scotland) Bill. Marshalled List of Amendments to be moved in Committee	0	1	0	1½
Agriculture and Fisheries ; Ministry of :—				
Diseases of Animals Acts. Handbook of Diseases of Animals Acts and Orders thereunder. Amendment No. 3. May, 1928.. (24-0037-03-00)	0	6	0	8
Foot-and-Mouth Disease, 3rd Progress Report of the Research Committee. (24-0075-03-00)	5	0	5	3
India Office :—				
Agriculture In India. Royal Commission on :— Vol. I. Part 3. Evidence of Officers serving under the Government of India and of Witnesses from Minor Provinces. (70-0186-01-03)... ...	1	9	2	0

Better Bulls.

"The exchange of views between Sir Merrik Burrell and Mr. Harry German as to the scrub bull promises to open up a way to the solution of this complicated problem," says the Agricultural correspondent of *The Times*. "The difficulties of the subject are appreciated by all, and there is no wish in any quarter at all conversant with the intricacies of the question to rush the matter to a hasty and unsatisfactory finish. The prevailing idea is to improve the quality of the commercial cattle of the country. There may easily be well-founded differences of opinion as to the means by which this can be achieved ; but the removal of those misunderstandings can be effected only by friendly intercourse, and there now appears to be reason to believe that all interested in the subject and in a position to influence others will meet and consider the matter with a view to overcoming the knotty points that must arise in the examination of a question so delicate and difficult as that of the elimination of unsuitable sires.

The improved prospects of general agreement as to the need for the operation of some sort of arrangement warrants the belief that the preliminary obstacles at any rate are nearing a satisfactory solution."

Merchandise Marks Act, 1926.

Board of Trade Committee's Report on Surgical Instruments and Appliances.

The Standing Committee (General Merchandise) appointed by the Board of Trade have reported on their enquiry as to whether imported surgical, medical, dental and veterinary instruments and appliances, and dental supplies and furniture should be required to bear an indication of origin.

The Committee recommend that an Order in Council be made requiring various classes of goods to bear an indication of origin at the time of sale or exposure for sale in the United Kingdom.

The goods imported which should bear a mark at the time of sale or exposure for sale include: Surgical, medical, dental and veterinary instruments made wholly or mainly of metal; surgical, medical, dental and veterinary appliances of all descriptions, not including artificial eyes; aseptic hospital furniture made wholly or mainly of metal, including operation and examination tables and chairs, instrument and dressing tables, ward lockers, instruments and dressing cabinets, sterilisers for instrument dressings and bowls; and various classes of dentists' supplies.

The Committee state that they are satisfied that, in the absence of a mark of origin on the imported goods, there is a reasonable possibility that purchasers may be misled as to their origin, especially having regard to certain catalogues which were brought to the notice of the Committee. The recommendation does not apply to goods on importation, mainly because of the great difficulty that would be experienced by the Customs in administering an order which would cover so wide a variety of articles.

The Report is obtainable from the Stationery Office, or through any bookseller, price 2d. a copy.

We are sure our readers will be pleased to learn that Lady M'Fadyean has now recovered sufficiently from her recent operation to be able to return to her home at Leatherhead.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

To the Editor of The Veterinary Record.

Sir,—The recent articles on Pneumo-Gastro-Enteritis, by Mr. Wentworth Elam, and on Purpura Hæmorrhagica (?), by Major Hamilton Kirk, provide interesting reading.

Personally, however, I am concerned rather with finding the causative organism of this disease than attaching a label to it.

From the frequency with which the bacillus of hæmorrhagic septicæmia is encountered in the bloody fæces and in rectal swabs obtained from the patients, I am inclined to regard this organism as the cause of the trouble, acting as a secondary invader in cases of distemper, often of a mild type.

I am quite unable to regard this affection either as a new disease or as one confined to, or principally attacking Greyhounds either native or imported, as I have met with it very frequently, in all breeds of dogs, both before and since the War, in sporadic outbreaks, and in very virulent epidemics. I believe the disease to be endemic in many large kennels, especially amongst Foxhounds and Alsatians.

Major Hamilton Kirk appears to me to be quite correct when he suggests that the affection is more virulent to exotic animals, in other words, that the native dog has acquired a substantial degree of immunity.

Both writers, however, appear to have overlooked one very important source of contagion, *viz.*, the recovered patient who remains a "carrier."

The probability of this factor was first pointed out to me in 1912 by the late Dr. Geo. W. Collins, of Wanstead, in connection with repeated annual outbreaks of this disease in a Foxhound kennel which we ultimately traced, by means of rectal swab examinations, to a stallion hound.

Both before and since that time I have frequently found this organism in the blood-stained fæces of dogs who have either succumbed to, or with difficulty recovered from, violent attacks of dysentery, generally ascribed to food poisoning, arsenical poisoning, or to "a chill caught at a show."

That dogs which have recovered from attacks of distemper possess a considerable degree of immunity seems probable, on comparing the number of outbreaks encountered in the years immediately following the termination of the Great War, with its infrequent occurrence nowadays, except in imported dogs.

During the War distemper was practically unknown in this country. Various factors contributed to this cause. Dog breeding and showing were at a standstill, the dog population fell to very small numbers, and movements of dogs about the country with consequent spread of infection ceased. Following the Armistice, movement was further controlled by the outbreak of rabies and its resulting restrictions.

Once these restrictions were removed, distemper spread like wildfire through the land. Whole packs of hounds—young and old—were down with it,—five packs at one time in my own practice. Young dogs had no acquired immunity and the old dogs, in many instances, had lost theirs.

In the Foxhound kennels the symptoms now regarded as a Greyhound disease were rampant.

In one kennel, on one morning, I had five hounds found dead in pools of blood. The Master and his huntsman, not unnaturally, attributed these deaths to poisoning, until the whole pack was found to be ill, and all possibility of poisoning was eliminated by a searching enquiry.

Examination of the blood evacuated by the dead hounds and by the survivors, shewed the presence of the organism of hæmorrhagic septicæmia in abundance.

I cannot regard my cases as being truly pneumo-gastro-enteritis, nor as resembling "Stuttgart."

Blowing respirations, certainly, are often present with the pouting of the cheeks, mentioned by Mr. Wentworth Elam, and there is often blood-stained catarrh from the nostrils, but the dogs lie comfortably on the sternum, and auscultation fails to reveal the characteristic lesions of pneumonia, whilst gastric symptoms such as vomiting and pain on palpation are usually absent. The disease appears to have its origin in the bowels and only in prolonged cases to extend forward, as a septicæmia. Hypostatic congestion is often marked on *post-mortem*, also the petechiæ mentioned by Major Hamilton Kirk, but these are practically ubiquitous, and I regard them as due to the hæmolytic action of the bacillus of hæmorrhagic septicæmia.

The difference from "Stuttgart" lies in the persistent high temperature, that of "Stuttgart" being generally subnormal, while such mouth lesions as are met with are usually hæmorrhagic—not necrotic,—and the breath is seldom foul.

I have found the best treatment to be "preventive," by means of a killed culture vaccine. The "carriers," when detected, respond well to this.—Faithfully yours,

David Eric Wilkinson.

4 The Terrace,
Woodford Green.
21*st August*, 1928.

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